

Army Installation Design Standards



ARMY INSTALLATION DESIGN STANDARDS

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<u>Suggested Improvements</u>: Submit comments and suggested improvements on the comment form provided to Facilities Policy Division, Assistant Chief of Staff Installation Management. (<u>Comment Form</u>)

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Summary of Changes

Start Date 29 Apr 2003

Date of Change: See "Change Date" at Specific Action "*"

Executive Summary:

* Changed the 3rd bullet in para ES.4.3 (Garrison Commander Responsibilities) to read: (Change Date: 24 June 03)

Submit Prioritized Improvements List for approval and funding IAW Director, IMA instructions after review and approval by Senior Mission Commander.

- * Added the present para 1.8.1.4 (Senior Mission Commander Responsibilities) to the ExSum as para ES.4.4 (Change Date: 24 June 03)
- * Added the present para 1.8.1.5 (Major Army Command/Tenant Responsibilities) to the ExSum as para ES.4.5 (Change Date: 24 June 03)
- * Changed second sentence of para ES.3.2 to read: (Change Date: 18 July 2003)

The IDG promotes a sense of arrival, functional compatibility, visual order, enhances site assets, relates the natural and man-made environment, and achieves consistent architectural themes throughout the installation and where applicable its sub-installations.

* Changed para ES.3.2 "Step 1. Installation Profile" to read: (Change Date: 18 July 2003)

Initially an installation profile is created in which the installation setting, existing land use, and proposed land use are detailed to include all applicable sub-installations.

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* Added "Summary of Changes": (Change Dated: 18 July 2003)

Section 1. Introduction:

- * Added Senior Mission Commander to Paragraph 1.4: (<u>Change Date: 9 June 2003</u>)
- 1.4.1 The IDG is to be used by all individuals involved in decision-making, design, construction, and maintenance of facilities (Fig.1.2). The primary users include the following:

1.4.1.1 Senior Mission Commander

- * Added "The Senior Mission Commander will chair an Installation Planning Board (IPB) to review and approve the RPPB's actions." to paragraph 1.7.2. (Change Date: 9 June 03)
- 1.7.2 In accordance with AR 210-20, *Master Planning for Army Installations*, the installation Real Property Planning Board (RPPB) is the adjudicating body for the Installation Design Guide at the installation level. Violations and variances from standards will be reviewed and adjudicated by the RPPB. The Senior Mission Commander will chair an Installation Planning Board (IPB) to review and approve the RPPB's actions.
- * Changed Paragraph 1 .8.1.4 to read: (Change Date: 9 June 2003)

1.8.1.4 Senior Mission Commander:

- Review and approve IDG.
- Approve RPPB prioritized improvement projects list recommendations to meet Army standards prior to submission to IMA Region Director.
- * Changed Paragraph 1.8.1.4 numbering to Paragraph 1.8.1.5. (<u>Change Date: 9 June 2003</u>)
- * Changed the 3rd bullet in para 1.8.1.3 (Garrison Commander Responsibilities) to read: (Change Date: 24 June 03)

Submit Prioritized Improvements List for approval and funding IAW Director, IMA instructions after review and approval by Senior Mission Commander.

Section 2. The Installation Design Guide Process and Implementation:

- * Added Paragraph 2.3.2.4 stating Senior Mission Commander function as monitor guidance provider of the development of the installation planning process. (Change Date: 9 June 2003)
- 2.4.2.4 The Installation Planning Board chaired by the Senior Mission Commander, will monitor development of the installation planning process and provide guidance to other installation boards and the Garrison Command for areas such as:
 - Strategic Planning,
 - Real Property Planning,
 - Range Planning, and

• Communications Planning.

Section 3. Design Guide Analysis Criteria:

Section 4. Installation Profile:

Section 5. Visual Themes and Zones:

* Add to Para 5.1 the development of a comprehensive visual theme and visual zone map. (Change Date: 22 Aug 2003)

Section 6. Improvement Projects:

Section 7. Site Planning Design Standards:

Section 8. Buildings Design Standards:

- * Changed Para 8.15.4.2 Army Barracks Standards to include changes made 1 May 2003: (Change Date: 2 June 2003)
- 8.15.4.2 Army Barracks Standards. The Army Barracks Modernization Program design criteria gives commanders and contractors the direction to incorporate best business practices around a modular floor plan. The Army Barracks Master Plan, Appendix I, Army Barracks Standards, promotes barracks with an appropriate balance between private and common areas. The Vice Chief of Staff of the Army (VCSA) specified the "New Army Barracks Construction Criteria" in his Memorandum Subject: New Barracks Construction Criteria, dated 11 July 2002 in which he strongly endorsed the new standards. The criteria was further revised in Memorandum Subject: Revised Barracks Construction Criteria, dated 1 May 2003 which makes the following four changes to the Army Barracks Standards:
 - Establishes the two-bedroom/one bath module as the standard module;
 - Requires installation of a stove or cook top;
 - Requires laundries in the barracks; and
 - Eliminates the separate solider community building.

See the above memorandum for detailed guidance.

* Added Para **8.17 Sale and Outlease of Army Assets** (Change Date: 18 June 03)

- 8.17.1 In an effort to offset some of the impacts of constrained resources, the Army has implemented initiatives that improve cost effectiveness and efficiency of installation operations. To the extent permitted by law, funds that become available as a result of these initiatives are retained by, or returned to, garrison commanders.
- 8.17.2 The Office of the Assistant Secretary of the Army for Financial Management and Comptroller (OASA (FM&C)) has developed the "Sales and Outlease of Army Assets Installation Guide" to assist garrison commanders in using the sales and outlease program. The guide provides an overview of major policies, procedures, and responsibilities pertaining to the following three major initiatives of the program:
 - Sale of Real Property;
 - Outlease of Real Property; and
 - Outlease of Personal Property.

The guide provides hyperlinks to Sale and Outlease governing regulations and legal and informational references.

- * Change Para **8.17 Army Standards** to read **8.18 Army Standards** (Change Date: 18 June 03)
- * Change Para **8.18 References** to read **8.19 References** (Change Date: 18 June 03)

Section 9. Circulation Design Standards:

Section 10: Landscape Design Standards:

Section 11: Site Elements Design Standards:

* Changed third sentence of Paragraph 11.4.5.1.6.1 to read: (Change Date: 9 June 2003)

Every installation entrance shall have an installation identification sign displaying only the US Army plaque, with the words "United States Army, Fort (Name of Fort), and gate name as indicated in "Figure 11.X - Installation Entrances Signs". The placement of Senior Mission Commander logo, unit crest, and other installation identification signs, monuments or displays shall be located inside the installation beyond the cleared area of the Access Control Point of entry.

* Changed caption of gate sign located on Page 11-16 to read: (Change Date 9 June 2003)

Fig. 11.X - Installation Entrance Signs

* Deleted paragraph 11.4.5.1.4.2 Building Numbers. (Change Date 16 Sept 2003)

Section 12: Force Protection Design Standards:

Appendix A. Design Team IDG Checklist:

Appendix B. Project Requirements IDG Checklist (Optional):

Appendix C. Interior Design Review Checklist (Optional):

Appendix D. Sustainable Design:

Appendix E. SPiRiT Checklist:

Appendix F. Landscape Maintenance Schedule:

Appendix G. Prioritized Improvement Projects List:

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Appendix I. Interior Finish Standards:

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Appendix K. Exterior Materials Charts:

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Appendix M. Historical Preservation Guidelines:

Appendix N. Housekeeping Rules (Example):

Appendix O. Plant Palette:

Appendix P. DA Facility Standardization Program Centers of Standardization:

Appendix Q. Standards and References:



The Installation Design Guide (IDG) is a hyperlinked document. A hyperlink is specially formatted text that contains an address (in the document, within another document, or on the internet) that when "followed" or "clicked on," takes the reader to that link. Hyperlinks are shown in the color blue and may or may not be underlined in blue depending on the format of a particular document. Hyperlinks within the IDG link to other documents, reference tables, appendices, graphics and maps, and the Internet for further reference or in-depth study on a particular issue.

Users of the IDG are presented with a hyperlinked table of contents. Each name is hyperlinked directly to the beginning of the document that it indicates. The table of contents is expandable and hyperlinked to each section and subsection.

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Authority: The Commander's Guide Army Installation Standards published 1 October 2002 gave initial senior Army leadership direction. The Army Installation Design Standards establishes the Army standards for installation design as directed by the Secretary of the Army and the Chief of Staff, Army.

ES.1 PURPOSE

The purpose of the *Army Installation Design Standards* is to provide Army standards and serve as a tool for implementing those standards (Fig. ES.1).

- The design standards for site planning, buildings, vehicular and pedestrian circulation, landscaping, site elements (i.e. signage, utilities), force protection, and Sustainable Design are provided for incorporation into each Army installation.
- The framework for implementation is the Installation Design Guide (IDG). Each installation will imitate the IDG processes in the Army Installation Design Standards in the development of their installation specific IDG.

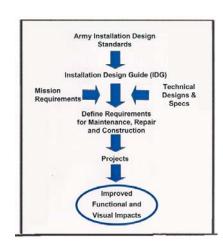


Fig. ES.1 - The Installation Design Guide is a Tool to Implement Army Standards.

ES.2 BACKGROUND

- ES.2.1 The Army Installation Design Standards follows the concept established in the Joint Service Unified Facilities Criteria Installation Design manual.
- ES.2.2 Research was conducted to incorporate into Army standards the best practices from other organizations such as the Air Force, Navy, AAFES, GSA, National Park Service, Federal Highway Administration, and various city and county governments, and associations.
- ES.2.3 Existing Installation Design Guides were also reviewed for their application of procedures, examples, and benchmarks for IDG implementation Army-wide.

ES.3 IDG Methodology

- ES.3.1 The IDG provides standards and guidelines to installation decision makers, contracted and in-house planning and design professionals, installation maintenance personnel, and others. The IDG sets interior and exterior standards and planning criteria to be integrated into all proposals, design and construction contracts, renovation, maintenance, or repair projects performed on the installation or its properties.
- ES.3.2 The following paragraphs present an overview of the steps involved in developing an installation specific IDG. The IDG promotes a sense of arrival, functional compatibility, visual order, enhances site assets, relates the natural and man-made environment, and achieves consistent architectural themes throughout the installation and where applicable its sub-installations.

Step 1. Installation Profile

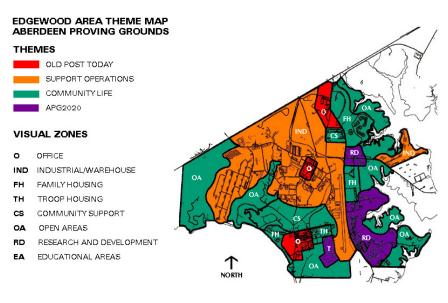
Initially an installation profile is created in which the installation setting, existing land use, and proposed land use are detailed to include all applicable sub-installations.

Step 2. Visual Surveys

The first survey establishes the visual zones and themes of the installation. The second survey documents the liabilities and assets within each visual zone.

Step 3. Visual Zones and Themes

Information gathered is recorded and used to delineate visual zones. Zones with similar visual characteristics are grouped together to form a broader category called themes. Visual characteristics define a "look and feel" of an area together with the dominant features that define its image. Typical visual characteristics include unique buildings, vehicular and pedestrian corridors. functional use, natural features. and spatial relationships (Fig. ES.3).



Step 4. Assets and Liabilities

Fig. ES.2 - Example of Themes and Visual Zones

Each visual zone is then defined for its assets and liabilities. Subsequently, a functional analysis is prepared.

Step 5. Recommendations

Recommendations are developed to address the liabilities identified and to enhance the assets noted in accordance with Army standards and the IDG goals and objectives. Recommendations are in the form of specific projects that are utilized to prepare a prioritized projects list for approval by the installation Real Property Planning Board.

ES.4 Responsibilities

ES.4.1 Assistant Chief of Staff for Installation Management (ACSIM):

 Establish Army facility standards and approve deviations from the standards.



- Approve Army Installation Design Standards Implementation Plan.
- Approve Army Installation Design Standards Investment Strategy.

ES.4.2 Director Installation Management Agency (Dir IMA):

- Develop and implement the Army Installation Design Standards Implementation Plan.
- Develop and implement the Army Installation Design Standards Investment Strategy.
- Ensure compliance with the Army Installation Design Standards.
- Maintain electronic newsletter for communicating changes in standards.

ES.4.3 Garrison Commander:

- Develop the installation's IDG.
- Chair installation Real Property Planning Board to review and approve projects established on the Prioritized Improvement Projects List to meet Army standards.
- Submit Prioritized Improvement Projects List for approval and funding IAW Director, IMA instructions after review and approval by Senior Mission Commander.
- Enforce IDG standards.

ES.4.4 Senior Mission Commander:

- Review and approve IDG.
- Review and approve RPPB prioritized improvement projects list recommendations to meet Army standards prior to submission to IMA Region Director.



ES.4.5 Major Army Command/Tenant:

- Participate in installation Real Property Planning Board.
- Participate in design and planning charrettes.
- Determine project functional requirements.
- Participate in design reviews.
- Participate in development of Prioritization Projects List.



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1.1 PURPOSE

- 1.1.1 A military installation conveys a visual image established by its architectural and historical character, arrangement of facilities, circulation patterns, and features in the landscape. This image can be clear, orderly, logical and attractive; or cluttered, confused, and unattractive.
- 1.1.2 The purpose of the *Installation Design Guide (IDG)* is to provide design guidance for standardizing and improving the quality of the total environment of the installation. This includes not only the visual impact of features on the installation and but also the impact of projects on the total built and natural environment. The improvement of the quality of visual design and development and use of sustainable design and development practices have a direct and future impact on the quality of life for those who live, work, or visit the installation.
- 1.1.3 The IDG includes standards and general guidelines for the design issues of site planning; architectural character, colors and materials; vehicular and pedestrian circulation; and landscape elements, including plant material, seating, signage, lighting, and utilities. The design guidelines incorporate sustainable design, quality of design, anti-

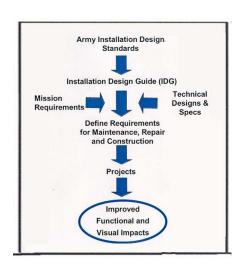


Fig. 1.1 - The Installation Design Guide is a Tool to Implement Army Standards.

terrorism, low maintenance, historical and cultural considerations, durability, safety, and compatibility.

1.2 GOAL

The goal of the IDG is to provide a clear, comprehensive approach to establish and maintain a positive visual imagery throughout the installation and implement appropriate standards. This is accomplished by providing a systematic development process that is defined through description, analysis, synthesis, and implementation.

1.3 OBJECTIVES

The objectives of the IDG are:

- 1.3.1 To provide a set of general design standards and guidelines that define color, materials, style, signage, and other aspects of design for all visual elements surveyed.
- 1.3.2 To provide standards and guidelines for the selection of materials for new construction, renovation, maintenance and repair projects.
- 1.3.3 To provide guidance for accomplishing sustainable development. See Appendix D.
- 1.3.4 To provide a structured methodology for establishing projects to improve the visual imagery of the installation.
- 1.3.5 To provide guidance to integrate ATFP standards.

1.4 AUDIENCE

- 1.4.1 The IDG is to be used by all individuals involved in decision-making, design, construction, and maintenance of facilities (Fig.1.2). The primary users include the following:
- 1.4.1.1 Senior Mission Commander
- 1.4.1.2 Garrison Commanders and Staff
- 1.4.1.3 Installation facility planning and design personnel

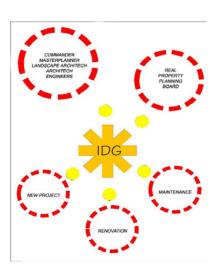


Fig. 1.2 - Design Guide Audience

- 1.4.1.4 Installation facility maintenance personnel
- 1.4.1.5 Installation Management Agency and Region
- 1.4.1.6 U.S. Army Corps of Engineers project managers, design, and construction staff
- 1.4.1.7 Consulting Planners, Architects, Engineers, Interior Designers, and Landscape Architects
- 1.4.1.8 Supporting agencies such as AAFES, DeCA, DoDDS, MEDCOM, tenants, etc.
- 1.4.1.9 National Guard
- 1.4.2 The ultimate success of the IDG is dependent upon the commitment of the above individuals and organizations working as a team to apply the Army standards.

1.5 ORGANIZATION

- 1.5.1 This Installation Design Guide is organized to facilitate the preparation and execution of projects to improve the visual image on the installation and ensure design conforms to Army standards to include sustainability.
- 1.5.2 Sections 2 and 3 discuss the process, use, and implementation of the IDG.
- 1.5.3 Section 4 establishes the installation profile. The installation setting, existing land use, and future land use are detailed.
- 1.5.4 Section 5 addresses the development of installation visual themes and zones. It lists visual themes and zones, specifies assets and liabilities of each zone, and offers recommendations.
- 1.5.5 Section 6 provides a list of prioritized improvement projects. All projects are addressed in terms of existing conditions, design concept, cost estimate, funding and maintenance impact and site plan where applicable.

1.5.6 Sections 7 through 12 discuss the six design components that provide the categories used for review and analysis during the visual inventory of the installation. The visual impressions of each zone are categorized according to these six design components.

1.6 WHEN TO USE THE INSTALLATION DESIGN GUIDE

1.6.1 This IDG provides installation-specific design data. The general design concepts, recommendations and standards addressed herein are applicable to all Army installations. This document will be used as a reference to acquire recommendations and Army standards on the design of all facilities, new roads, road widening, parking, sidewalks and other pedestrian paths, bicycle paths, access control points, site furnishing selection and placement, signage selection and placement, lighting selection and placement, utility corridor selection, and utilities. Clearing of plant materials and planting of new plant materials will be based upon the guidance herein.

1.7 MAINTAINING THE INSTALLATION DESIGN GUIDE

- 1.7.1 Since the IDG is a "living document," keeping it up-to-date and accurate will ensure its continued usefulness. Therefore, it will become necessary to revise it as mission, budget, standards, and other conditions generate new planning and design requirements and in response to facility user feedback.
- 1.7.2 In accordance with AR 210-20, *Master Planning for Army Installations*, the installation Real Property Planning Board (RPPB) is the adjudicating body for the Installation Design Guide at the installation level. Violations and variances from standards will be reviewed and adjudicated by the RPPB. The Senior Mission Commander will chair an Installation Planning Board (IPB) to review and approve the RPPB's actions.
- 1.7.2 Installation: Enter installation specific procedures for maintaining the Installation Design Guide.

1.8 RESPONSIBILITIES

1.8.1 As directed by the Secretary of the Army and the Chief of Staff, Army and approved by the Army Installation Management Board of Directors the following responsibilities are established:

1.8.1.1 Assistant Chief of Staff for Installation Management (ACSIM):

- Establish Army facility standards and approve deviations from the standards.
- Approve Army Installation Design Standards Implementation Plan.
- Approve Army Installation Design Standards Investment Strategy.

1.8.1.2 Director Installation Management Agency (Dir IMA):

- Develop and implement the Army Installation Design Standards Implementation Plan.
- Develop and implement the Army Installation Design Standards Investment Strategy.
- Ensure compliance with the Army Installation Design Standards.
- Maintain electronic newsletter for communicating changes in standards.

1.8.1.3 Garrison Commander:

- Develop the installation's IDG.
- Chair Real Property Planning Board (RPPB) to review and approve projects established on the Prioritized Improvement Projects List (<u>Appendix G</u>) to meet Army standards.
- Submit Prioritized Improvements Projects List for approval and funding IAW Director, IMA instructions after review and approval by Senior Mission Commander

Enforce IDG standards.

1.8.1.4 Senior Mission Commander:

- Review and approve IDG.
- Review and approve RPPB prioritized improvement projects list recommendations to meet Army standards prior to submission to IMA Region Director.

1.8.1.5 Major Army Command/Tenant:

- Participate in installation Real Property Planning Board.
- Participate in design and planning charrettes.
- Determine project functional requirements.
- Participate in design reviews.
- Participate in development of Prioritization Projects List.

1.9 SUSTAINABLE DESIGN AND DEVELOPMENT

- 1.9.1 Practicing the principles of sustainable design in the planning, design, construction and operation of infrastructure and facilities is a smart business practice. Protect our natural resources and reducing our impacts on the natural environment is achievable when we create high-performance, healthy (Fig. 1.X), energy efficient (Fig. 1.X) and safe buildings.
- 1.9.2 The Integrated Design Process. Critical to the success of sustainable design and development is the organization and commitment of the team to engage in the Integrated Design Process. To effect change in building design and operation, the project delivery process itself must become a collaborative effort to integrate design strategies among all disciplines and all players in the project delivery process. Integrated design demands a more inclusive team working together than is traditionally the case. Future building users and facility managers must be invited to join architects,



1.X - Energy Efficient Lighting Contributes to Sustainability



1.X - CO2 Measurements Measure Indoor Air Quality Assisting in Creating a Healthy Environment

engineers, planners in developing the vision and goals for new facilities. (Adapted from the HOK Guidebook to Sustainable Design)

- 1.9.3 Appendix D, Sustainable Design, discusses the sustainable design concept and its application to Army projects. Paragraph D.3 discusses the Sustainable Project Rating Tool (SPiRiT) developed by the U.S. Army Corps of Engineers (USACE). Per the Assistant Secretary of the Army (Installation & Environment) Sustainable Design and Development Memorandum and the Assistant Chief of Staff for Installation Management (ACSIM) endorsement of Sustainable Design and Development initiative, the SPiRiT rating system will be used by design professionals in all new construction, additions, or renovation of Army facilities for rating sustainability.
- 1.9.3.1 The SPiRiT document (<u>Appendix E</u>) was derived from the U.S. Green Building Council LEED 2.0 (Leadership in Energy and Environmental Design) Green Building Rating System.
- 1.9.3.2 Army Rating Standard.
- 1.9.3.2.1 The SPiRiT rating of "Silver" is the standard for all FY06 MILCON vertical construction projects currently under design (as of March 18, 2003). For all other FY06 and future-year MILCON projects the minimum SPiRiT rating requirement is "Gold". See <u>Assistant Secretary of the Army memorandum Subject: Sustainable Design and Development Requirements, dated 18 March 2003</u>.
- 1.9.4 Further information on sustainable design can be obtained at the following websites:
 - Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website This site provides information on the following topics: documentation and references; sustainable process, tools, products and materials; Sustainable Design and Development Training; and links to various sustainable design and development informational website.
 - U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering



1.X - Efficient Water Usage Contributes to a High Performance Facility

Research Laboratory (CERL), <u>Sustainable Design</u> and Development Website.

 Whole Building Design Guide (WBDG) This site provides comprehensive and current information on sustainable design strategies and technologies.

1.10 ARMY STANDARDS

 1.10.1 Army Standards and References are included in the last two paragraphs of the following sections and appendices: Section 7, Site Planning Design Component; Section 8, Buildings Design Component; Section 9, Circulation Design Component; Section 10, Landscape Design Component; Section 11, Site Element Design Component; Section 12, Force Protection Design Component; Appendix D, Sustainable Design; and Appendix M, Historic Preservation Guidelines.

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Section 2 THE INSTALLATION DESIGN GUIDE PROCESS and IMPLEMENTATION

2.1 INTRODUCTION

Military installations are hometowns for many of our military families, resources for many veterans and retirees, and an integral part of the surrounding communities. The Installation Design Guide (IDG) provides direction for achieving a sense of community, order, tradition, and pride on our installations. This section provides a brief overview of the IDG developmental process and methodology detailed in <u>Unified Facilities Criteria</u> (UFC) 2-600-01, *Installation Design*.

2.2 THE DESIGN GUIDE PROCESS

- 2.2.1 The IDG includes a process for analysis, planning, design and implementation. This process includes the following steps:
- 2.2.1.1 **Setting Goals and Objectives.** The installation develops a set of goals and objectives that address the visual requirements of the installation. The goals and objectives provide a pre-determined image that helps create a visually pleasing and optimally functional environment.

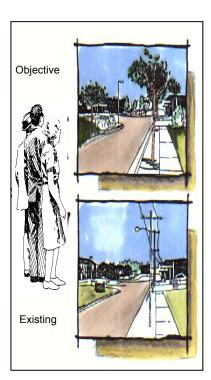


Fig. 2.XX - Include Positive Visual Elements

2.2.1.2 **Conduct Visual and Spatial Surveys.** Two visual surveys are preformed in the preparation of the IDG. The first survey establishes the visual zones and themes of the installation. The second survey documents the assets and liabilities within each visual zone. Chapter 5 of UFC 2-600-01 details the method for conducting the installation visual survey.

2.2.1.2.1 Establish Visual Zones and Themes.

- 2.2.1.2.1.1 The Information gathered during the first survey is used to establish the visual zones of the installation. The visual zones are delineated by the visual characteristics of an area defined as the "look and feel" of an area together with the dominant features that help define its image. A functional analysis of each zone organizes the visual impressions and assesses their functional relationships to determine the visual character and unifying motif. Typical visual characteristics include unique buildings, vehicular and pedestrian corridors, functional use, natural features, and spatial relationships.
- 2.2.1.2.1.2 Visual zones with similar characteristics are then grouped together to form a broader category called themes. Example themes include, community life theme, operations support theme, buffer/open space theme, and industrial theme.
- 2.2.1.2.2 **Determine Assets and Liabilities.** The second survey a visual zone inventory is conducted. During the survey each visual zone is analyzed for specific visual impacts. The objective of the inventory is to define the visual assets and liabilities within the visual zone.
- 2.2.1.2.2.1 Assets. Assets are positive visual elements, design elements or features that enhance the surroundings, either visually or functionally.
- 2.2.1.2.2 Liabilities. Liabilities are negative visual elements, design elements or features that detract from the visual image or functionality of the surroundings. Liabilities should be corrected through appropriate design measures and are the basis for recommendations for improvement.

2.2.1.3 Recommendations and Implementation Plan.

The assessment of each visual zone includes recommendations to correct liabilities and where desired to enhance assets. The recommendations are in the form of specific projects and are described in detail Section 6, Improvement Projects of the IDG.

2.2.2. **Design Components**.

The following six design components, described in sections 7 through 12, provide guidelines and standards from which to conduct the visual zone review and analysis.

- Section 7, <u>Site Planning</u>
- Section 8, <u>Buildings</u>
- Section 9, <u>Circulation</u>
- Section 10, <u>Landscape</u>
- Section 11, Site Elements
- Section 12, <u>Force Protection</u>
- 2.2.3 **Design Principles.** The visual inventory and analysis requires an understanding of basic design principles. These design principles are discussed in <u>Section 3</u>, <u>paragraph 3.3</u>.
- 2.2.4 **Visual Elements.** The basic design principles are utilized to define the visual elements described in <u>Section 3</u>, <u>paragraph 3.4</u>. The assessment and classification of visual elements follows basic design principles describing "good" (positive visuals elements) and "not so good" (negative visual elements) design.

2.3 USING THE DESIGN GUIDE

2.3.1 Use this IDG in determining the general design and construction considerations inherent in the preparation of project plans. The IDG provides design guidelines and Armywide design standards intended to be used in all maintenance, repair, renovation and new construction projects. The IDG applies to all projects, regardless of the funding source.

- 2.3.2 The following steps illustrate how the design guide is used for the preparation of plans for new construction, renovation, maintenance and repair projects on the installation (Fig. 2.X):
- 2.3.2.1 Step 1: Review the Installation Profile information included in this IDG (Section 4).
- 2.3.2.2 Step 2: Review the IDG analysis criteria information (Section 3) including design goals and objectives, visual elements, and design principles.
- 2.3.2.3 Step 3: Review the applicable references, guidelines, and standards of the design components. These include site planning, buildings, circulation, landscaping, site elements and force protection and are discussed in Sections 7 through 12 respectively.
- 2.3.2.4 Step 4: Review the information and description of the installation themes in Section 5, paragraph 5.2.
- 2.3.2.5 Step 5: Select the zone where the project will be located from <u>Section 5</u>, <u>Visual Themes and Zones</u>. Review the assets, liabilities, and recommendations for that zone.
- 2.3.2.6 Step 6: Select the appropriate guidelines or standards from the design components addressed in Sections 7 through 12.
- 2.3.2.7 Step 7: Assemble all materials gathered in steps 1 through 5 above.

2.4 IMPLEMENTATION

2.4.1 IDG Review and Approval.

Installation - Enter review and approval procedures at the installation. The final approval authority at the Garrison is the Garrison Commander.

2.4.2 Compliance.



Fig. 2.X - Using the Design Guide

- 2.4.2.1 For the IDG to work optimally as a management tool, it is essential that the Master Planner or designated representative establish an understanding of the IDG among the parties concerned with its use. This can best be established at the RPPB level where all installation principles are represented. The Directorate of Public Works (DPW) staff Master Planner or designated representative shall insure that the guidelines and requirements of the IDG are readily available to, and understood by, all parties involved in the design of new facilities, design of additions or alterations to existing facilities, or maintenance.
- 2.4.2.2 The Master Planner or designee, acting in support of the RPPB, is the first level reviewer of projects (SRM, MCA, and NAF to include Design Build) and other requests for actions that involve compliance with IDG guidelines and standards.
- 2.4.2.3 The Garrison Commander, supported and advised by the RPPB, is the final authority in enforcement of the IDG quidelines and standards.
- 2.4.2.4 The Installation Planning Board chaired by the Senior Mission Commander, will monitor development of the installation planning process and provide guidance to other installation boards and the Garrison Command for areas such as:
 - Strategic Planning,
 - Real Property Planning,
 - Range Planning, and
 - Communications Planning.
- 2.4.3 Project Approval.
- 2.4.3.1 Project requests to include a 4283 shall be submitted to the DPW or equivalent and will include the required Design Team IDG Checklist discussed below.
- 2.4.3.2 Design Team IDG Checklist.
- 2.4.3.2.1 The Design Team IDG Checklist is to be completed by the design team to assure the guidelines and standards

have been considered in the design process. The Design Team IDG Checklist is provided in <u>Appendix A</u>.

- 2.4.3.2.2 The Designer of Record or Design Agent shall provide a copy of the completed checklist to the Master Planner, together with a signed certification statement with each design submittal. The checklist along with concept site plans and elevations for each design submittal shall be provided to the Master Planner for review. If the Master Planner or designated representative concurs, the plan and the signed checklist are forwarded to the RPPB for final approval.
- 2.4.3.2.3 The accepted checklist shall become a part of the project record files.
- 2.4.4 Self-help Projects, and Occupant Purchased and Installed Site Furnishings and Features Projects

Installation - Enter local procedures for these projects.

- 2.4.5 Request for Waiver.
- 2.4.5.1 A request of waiver form the Design Guide Checklist (Appendix A) will be submitted to the Master Planning office for approval by the RPPB.
- 2.4.5.2 A request for waiver from the Army standards shall be submitted to the Assistant Chief of Staff for Installation Management for approval.
- 2.4.6 Checklists (optional).
- 2.4.6.1 Projects Requirements Checklist (Optional).

It is recommended that this checklist be used as a predesign planning tool for initiating projects and to present a functional description of the project at MILCON <u>Planning Charrettes</u> and <u>Design Charrettes</u>. The checklist can assist participants of the charrettes in project formulation and documentation. By the nature of the planning process all the data on the forms will not be completed, however, the form should be completed to the greatest extend possible prior to the charrettes. The checklist can also be used to document the results of the planning or design charrettes. The Projects Requirement Checklist is provided at <u>Appendix B</u>.

2.4.6.2 Interior Design Review Checklist (Optional).

It is recommended that the Interior Design Review Checklist be used during review of a Request for Proposal (RFP) submission or an AE or in-house design prior to solicitations. The Interior Design Review Checklist is provided at Appendix C.

2.4.7 The requirement to use the IDG as a design tool in all facility planning, design, and construction should be included in the Request for Proposals on new projects, Scopes of Work for new projects, and maintenance agreements.

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Section 3 DESIGN GUIDE ANALYSIS CRITERIA

3.1 INTRODUCTION

- 3.1.1 The Installation Design Guide process depends upon the development of visual goals and objectives and the identification of visual elements. Goals and objectives provide the desired visual context of the installation.
- 3.1.2 Basic design principles are used to assess, define, and classify visual elements. This assessment becomes the design criteria used to determine the visual character of the installation. These design criteria are used for design decisions in the review of existing visual context and determination of project recommendation.

3.2 GOALS, OBJECTIVES AND RECOMMENDATIONS

Installations: List goals, objectives and recommendations. These goals and objectives should reflect the goals, intent, and vision of the Real Property Master Plan.

<u>Chapter 4</u> of the UFC 2-600-01 discusses the goals, objectives and recommendations process and gives examples.

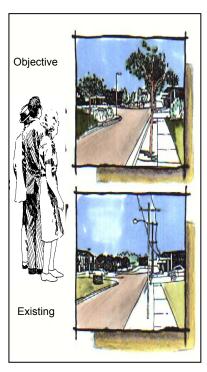


Fig. 3.X - Include Positive Visual Elements

3.3 IDENTIFICATION AND CLASSIFICATION OF VISUAL ELEMENTS

- 3.3.1 Basic design principles define visual elements and assess their character.
- 3.3.2 The assessment and classification of visual elements follows basic design principles describing "good" and "not so good" design. Their assessment becomes the design criteria used to determine the visual character of the installation.

3.4 DESIGN PRINCIPLES

The visual inventory and analysis requires an understanding of basic design principles. The primary principles are:

- Scale The proportional relationship of humans to their spatial environment. The scale should result in a comfortable relationship for the user and will vary as space, size and activities vary (Fig. 3.X).
- Form The size and shape of mass. Individual forms should be designed to complement one another and the environment.
- Function The use of a space or an area. Function is gauged by the degree to which the space works for its intended purpose.
- **Color** All elements of the visual environment have color. The use and arrangement of colors greatly determine the visual impact of all elements.
- **Texture** All elements of the visual environment have texture. The use and blending of textures greatly impact the visual environment.
- Unity All elements of the visual environment should blend to complement one another. Repetition of scale, form, color, and texture results in a unified visual impression.
- **Framing** All views include a ground plane, side planes, and overhead plane. The relationship of planes changes as the individual moves through the environment (Fig. 3.X).
- Axis An axis is a linear progression of space connecting two or more dominant features.

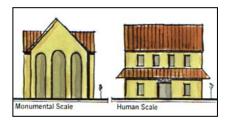


Fig 3.X - Monumental & Human



Fig 3.X - Parade Ground Axis with Building as Terminus

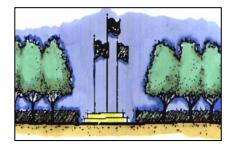


Figure 3.X - Symmetrical Elements

- Terminus A terminus is the end of an axis and is typically defined by a dominant feature such as a building.
- Balance Visual elements are composed to be symmetrical or asymmetrical. In either case, visual elements should be sized and located to provide visual balance (Fig. 3.XX).
- **Sustainability** Practicing the principles of sustainable design in the planning, design, construction and operation of infrastructure and facilities is a smart business practice (<u>See Appendix D</u>).



Fig. 3.X - Buildings Are Typically the Dominate Feature on an Installation

3.5 VISUAL ELEMENTS

The visual elements, described below, elements include manmade and natural features and their inter-relationship. This Installation Design Guide provides guidance on how to recognize the visual impacts of the installation and how to improve upon them if warranted.

- Natural Characteristics Regional and site characteristics that have been preserved and enhanced as a part of the installation.
- Edges and Boundaries Linear elements such as walls, fences, or trees create separation of use and activities.
- Buildings and Structures Typically the most dominant features of an installation. Their location and design characteristics determine the primary visual image.
- Activity Nodes Centers of activity that attract people on a daily basis.
- Landmarks Visually or historically prominent features such as towers, statues, static displays, or buildings that provide identity and orientation of place.
- **Entrances and Gates** Provide the first and last impression of the installation.
- Circulation System Includes streets, railroad tracks, trails, sidewalks, parking lots, driveways, delivery areas and bicycle paths. The circulation system utilizes a large amount of space and creates significant visual impact.



Fig. 3.X - Landmarks Provide Orientation of Place



Fig. 3.X - Street Trees Improve the Overall Visual Quality of the Installation

- Trees and Other Vegetation Trees and other vegetation frame views, provide visual screens, shade, color, and interest in the installation.
- **Street Trees** Street trees soften, complement, and define the road hierarchy, and improve the overall visual quality of the installation.
- Views and Vistas Scenic and attractive views and vistas should be enhanced. Unattractive views should be screened.
- Open Spaces Open space areas create visual impact and can be designed to either separate or integrate adjacent uses.
- Signage A coordinated installation signage plan, addressing both exterior and interior signage, should be developed to facilitate circulation and provide useful information.
- Utility Corridors Utilities should be in corridors and unsightly above ground utilities minimized.
- Other Elements Visual elements other than those above may occur within an installation and should be noted.

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Installation: Complete the following: Note - spatial data will be developed/provided in Geographical Information System Spatial Data Standards per Executive Order 12906, Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure (E.O. 12906).

4.1 SETTING

4.1.1 Regional Setting

_____ is located . . .

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.2 History of the Installation

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3 Environmental Setting

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

Pictures with Captions as Appropriate - Fig. 4.1 etc.

4.1.3.1 Topography

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.2 **Geology**

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.3 Soils

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.4 Climate

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.5 Hydrology

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.6 Vegetation

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.7 Wetlands

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.8 Wildlife

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.3.9 Environmentally Sensitive Habitat

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.4 Man-Made Environment

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.4.1 Contaminated Areas

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.4.2 Solid Waste Management

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.4.3 Noise

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.1.4.4 Air Quality

(Text, Maps, Sketches, Photographs) (Hyperlinks where appropriate.)

4.2 EXISTING LAND USE

4.2.1 Subparagraphs detailing the existing land use.

Installation: These paragraphs discuss (in text and maps - hyperlinked where applicable) the current themes and visual zones established by previous IDGs or discuss the existing land use from which themes and visuals zones will be developed. Land use information is obtained from the installation's real property master plan (RPMP).

4.3 PROPOSED LAND USE

4.3.1 *Installation:* Subparagraphs detailing the proposed land use. In text format as well as, maps, sketches, and photographs where applicable. Land use information is obtained from the installation's real property master plan (RPMP). To assure accurate information is shown Land use maps shall be updated before the Installation Design Guide.

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Section 5 VISUAL THEMES AND ZONES

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

5.1 INTRODUCTION

5.1.1 Visual themes and zones are determined after performing the two surveys mentioned in <u>paragraph 2.2</u>. These surveys were conducted using existing installation maps, visual inspection, interviews, questionnaires, and photographs to record impressions of visual and spatial impacts. The data captured was used to define the visual themes and zones of the installation. Figure 5.X presents a graphical portrayal of the of the installation's visual zones and themes.

Installation: Develop a visual zone/theme relationship map graphic as depicted in the following example:

Installation: Insert pictures with captions as appropriate - Fig. 5.X etc.

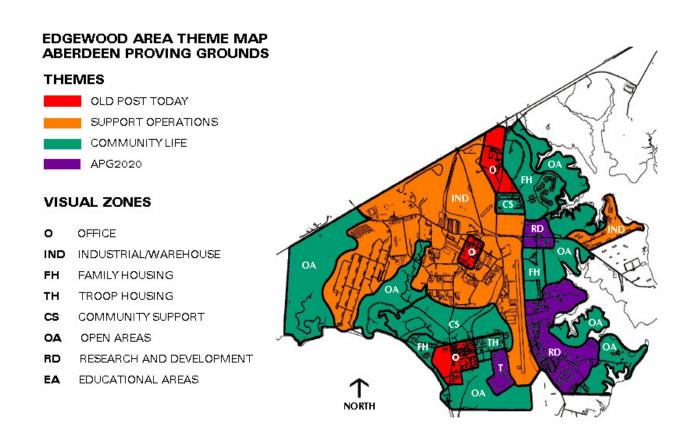


Fig. 5.X Themes and Zones Map

5.2 VISUAL THEMES

- 5.2.1 Visual themes create a perception of unification within the installation. These themes create design consistency that provides orientation and a "sense of place".
- 5.2.2 Visual themes are generalized groupings of visual zones that provide the same general use and visual characteristics. Visual themes include broad scale activities that occur on the installation. These activities typically include similar design and layout characteristics. Table 5-1 shows the theme/visual zone relationship throughout the installation.

Installation: Complete Table 5-1 as applicable.

	EXAMPLE	EXAMPLE	EXAMPLE
xxxxx	COMMUNITY LIFE THEME	INDUSTRIAL	SUPPORT
THEME	LIFE THEME	THEME	OPERATIONS
			THEME
NAVAV.	Family Haveign	VVVV	VVVV
XXXX	Family Housing	XXXX	XXXX
Visual Zone	Visual Zone	Visual Zone	Visual Zone
XXXX	XXXX	XXXX	
Visual Zone	Visual Zone	Visual Zone	
xxxx	Open Areas		
Visual Zone	Visual Zone		
	Community Support		
	Visual Zone		
TABLE 5- 1 THEME/ZONE RELATIONSHIP			

5.3 VISUAL ZONES

- 5.3.1 Visual zones are areas within the installation that include similar visual characteristics. Visual characteristics define a "look and feel" of an area together with the dominant features that define its image. Typical visual characteristics include unique buildings, vehicular and pedestrian corridors, natural features, and spatial relationships.
- 5.3.2 The following paragraphs presents a functional analysis of each of the visual zones. This analysis includes a description of the visual character, a visual analysis map, assets, liabilities, and recommendations for each zone.
- 5.3.3 The visual analysis maps graphically illustrate the features and constraints that affect the visual character of the zone.
- 5.3.4 Assets and liabilities are determined according to the following criteria: installation visual goals and objectives (Section 3, para 3.2), design principles (Section 3, para 3.3) and visual elements (Section 3, para 3.4) in relationship to the six design components described in Sections 7 through 12 of this Installation Design Guide.
- 5.3.5 Recommendations are made to correct the liabilities or enhance the assets. These recommendations are used to generate projects that are listed in Section 6, Improvement Projects.

5.4 (NAME OF ZONE) VISUAL ZONE

5.4.1 Visual Character.

Installation: Describe the visual character of the zone.

5.4.2 Visual Analysis Map.

Installation: Develop a visual analysis map showing items such as:

- Main Entrance
- Circulation
- Focal Points

- Open Space
- Buffer
- Primary Road
- Secondary Road
- Significant Vegetation
- Good Views
- Historical and/or Architecturally Significant Features
- etc.

5.4.3 Assets

Installation: List, where applicable, the assets of the visual zone as they related to the six design components using the design principles and visual elements described within this Installation Design Guide. Include pictures of the asset with captions stating the reasoning for the visual element being an asset.

- 5.4.3.1 Site Planning
- 5.4.3.2 Buildings
- 5.4.3.3 Circulation
- 5.4.3.4 Plant Material
- 5.4.3.5 Site Elements
- 5.4.3.6 Force Protection

5.4.4 Liabilities

Installation: List, where applicable, the liabilities of the visual zone as they related to the six design components using the design principles and visual elements described within this Installation Design Guide. Include pictures of the liability with captions

stating the reasoning for the visual element being a liability.

- 5.4.4.1 Site Planning
- 5.4.4.2 Buildings
- 5.4.4.3 Circulation
- 5.4.4.4 Plant Material
- 5.4.4.5 Site Elements
- 5.4.4.6 Force Protection

5.4.5 Recommendations

Installation: List the recommendations applicable to each of the six design components that will either enhance the assets or bring the liability to standards and/or within the recommended guidelines. These are the catalyst for developing the projects that will be listed in Section 6, Improvement Projects.

- 5.4.5.1 Site Planning
- 5.4.5.2 Buildings
- 5.4.5.3 Circulation
- 5.4.5.4 Plant Material
- 5.4.5.5 Site Elements
- 5.4.5.6 Force Protection
- 5.5 (NAME OF ZONE) VISUAL ZONE
- 5.6 (NAME OF ZONE) VISUAL ZONE

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Section 6 IMPROVEMENT PROJECTS

6.1 INTRODUCTION

- 6.1.1 Section 6 consists of projects generated from the recommendations presented in the visual zone analysis section starting at paragraph 5.4. The projects may consist of enhancement of a single visual element or improvement of an area that includes a variety of visual elements. Depending on the project scope and cost, the projects could include: Military construction (MILCON), Host Nation Nonappropriated-funded (NAF), programs, Procurement, Army (OPA) and maintenance and repair, local minor construction, and self-help. Each improvement project is described and cost-estimated in enough detail to place each project within the appropriate project list or annual work plan, in an appropriate Fiscal Year, within the statutorily correct funding program. Projects require a Capital Investment Strategy.
- 6.1.2 The paragraphs below discuss each project at length and includes existing conditions, project description, design concept, cost estimate, primary and alternate recommended funding sources, photographs, sketches and maintenance impact as applicable.
- 6.1.3 <u>Appendix G</u> of this Installation Design Guide, the Prioritized Improvement Projects List, records information on each project and prioritizes them in accordance with the installation goals and objectives

Pictures with Captions as Appropriate - Fig. 6.1 etc.

stated in <u>paragraph 3.2</u>, Goals, Objectives and Recommendations. The appendix is an interactive form and designed to be altered as circumstances effecting the prioritization scheme change.

6.2 INSTALLATION: INSERT PROJECT TITLE

Installation: Where applicable complete the following with text, photographs, sketches, etc:

- 6.2.1 Existing Conditions:
- 6.2.2 Project Description:
- 6.2.3 Design Concept:
- 6.2.4 Cost Estimate:
- 6.2.5 Site Plan:
- 6.2.6 Maintenance Impact:
- 6.2.7 Recommended Funding Source:
- 6.2.8 Alternate Funding Source:

6.3 PROJECT TITLE, AND CONTINUE THE SAME AS ABOVE

- 6.3.1
- 6.3.2
- 6.3.3

Cont.

6.4 PROJECT TITLE, AND CONTINUE THE SAME AS ABOVE

6.4.1

6.4.2

Cont.

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Section 7 SITE PLANNING DESIGN STANDARDS

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

7.1 INTRODUCTION

7.1.1 Site Planning is the process of arranging an external physical environment in complete detail to include the structures, circulation patterns, and other elements that form the built environment. The site planning and design process is used to develop a project that fulfills facility requirements and creates the optimal relationship with the natural site. See TM 5-803-14, Site Planning and Design for detailed guidance on site planning to include program analysis, site analysis, site verification, and concept development. This TM also discusses site design guidelines, describes the steps in the site planning process, and contains examples of various sketches/diagrams developed in support of these steps. Also see TI 800-01, Design Criteria, Chp. 3, Site Planning and Environmental documentation will be Design Criteria. prepared prior to site selection to support the construction activity in accordance AR 200-2, Environmental Effects of Army Actions.



Fig. 7.1 - Site Plan

- 7.1.2 The site planning component provides the spatial arrangement of the installation. (Fig. 7.1) The installation master plan provides information that forms the foundation for site planning. The master plan is a mechanism for ensuring that individual projects are sited to meet overall installation requirements. AR 210-20, Master Planning for Army Installations, and the Master Planning Instructions (MPI), provide additional information concerning the master plan.
- 7.1.3 The other five design components are dependent upon site planning for their location and spatial relationships. The other five components are identified below and discussed in Sections 8-12.
 - Section 8 Buildings Design Component
 - Section 9 Circulation Design Component
 - Section 10 Landscape Design Component
 - Section 11 Site Elements Design Component
 - Section 12 Force Protection

7.2 SITE PLANNING OBJECTIVES

- 7.2.1 The goal of site planning for the installation is to produce an attractive, sustainable development. Sustainability requires the built environment to be designed and constructed to preserve and enhance the natural environment. Manmade facilities are designed as a part of the environment to minimize negative environmental impacts. General site planning techniques resulting in sustainable development are cost efficient because they conserve energy and reduce construction and maintenance cost. Typical site planning objectives include the following.
- 7.2.1.1 Preserve natural site features such as topography, hydrology, vegetation, and tree cover.
- 7.2.1.2 Locate facilities with consideration of climatic conditions such as wind, solar orientation, and microclimate.
- 7.2.1.3 Preserve the natural site by molding development to fill around existing land forms and features. This development approach minimizes extensive earthwork,

Installations: Insert pictures with captions as appropriate - Fig. 7.X etc.

preserves existing drainage patterns, and preserves existing vegetation.

7.2.1.4 Plan for facilities to be clustered to preserve land and reduce construction cost. Clustering should occur on the flattest land areas. Room for expansion should be provided. When clustering facilities Force Protection measures must be considered.

7.3 SITE PLANNING CONSIDERATIONS

7.3.1 The primary "fit" of the development to its environment is initially determined by the site analysis and subsequent site planning. The determination of primary issues that provide basic location and organization of spatial relationships are determined during the site planning (Fig. 7.X).

Installations - Expand or modify entries as necessary for particulars within geographical area or specific objectives of the Region, Command, or installation.

7.3.2 Accessibility. Any building or facility used only by ablebodied personnel need not be accessible to the disabled. Nevertheless, when feasible and appropriate, incorporate accessibility measures into the design since the facility use may change over time (military exclusion is provided by UFAS 4.1.4 (2)). All other structures or facilities must meet the standards of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards applied in the event of conflicting guidelines. (See AR 420-70, Chapter 2, Para 2.8). This includes the avoidance of site barriers through the use of curb cuts, ramps, handrails, and grade-level entrances to avoid site barriers. Provide designated handicapped parking spaces in all major parking lots and drop-off zones for persons with mobility impairments. Modify existing structures for handicapped accessibility whenever possible, especially community facilities that are most likely to be used by families, veterans or visitors.

7.3.3 Environmental. Environmental issues to consider in the preparation of a site plan include any action or proposal that has a detrimental affect on a site area's land, water or air quality. The location of facilities on land that results in

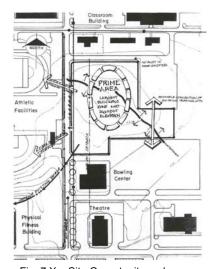


Fig. 7.X – Site Opportunity and Constraint Plan

minimal disturbance to the existing topography, vegetation and drainage patterns greatly reduces the negative impact on the environment. It is the Garrison Commanders responsibility to ensure that all National Environmental Policy Act (NEPA) documentation is started before the site selection process, as this process feeds the 1391 process.

- 7.3.3.1 NEPA requires that an Environmental Impact Statement (EIS) be submitted to the U. S. Environmental Protection Agency (EPA) for major projects that may significantly effect the environment. The EPA reviews and responds to filed impact statements. Information pertaining to Environmental Impact Statements and their submission can be found at the following EPA websites.
 - Environmental Impact Statement (EIS)
 - Submitting Environmental Impact Statements (EISs)
- 7.3.3.2 Federal law requires that prior to the undertaking of activities which effect the nation's waterways, described as "navigable waters of the United States" and "waters of the United States" to include wetlands, a permit must be acquired. Information regarding statutory, administrative, and judicial matters, including general regulatory policy, definitions of "waters of the United States" and "navigable waters", and processing of permits can be obtained at the following Corps of Engineers website.
 - <u>Statutory, Administrative, and Judicial</u>
 <u>Materials</u>
- 7.3.3.3 Include procedures for mitigating environmental concerns in the early stages of project development. To the maximum extend possible avoid siting development or individual buildings in environmentally sensitive areas. The installation master plan environmental overlay should be reviewed prior to the development for areas designated as threatened and endangered species habitat areas.

7.4 SITE PLANNING DESIGN CRITERIA

7.4.1 The site planning component of installation design comes first in the design process and determines the

general location of the other components. Consequently, site planning must consider the criteria for architectural design, circulation, landscape architecture, site elements, and force protection. Site planning criteria is divided into two categories, natural conditions and manmade conditions. Each is discussed separately in the following paragraphs. These criteria are to be utilized for the assessment of the visual and spatial impacts of site planning.

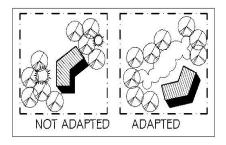
7.5 NATURAL CONDITIONS

7.5.1 Topography. The natural terrain is a major determinant of the layout and form of the installation. The following guidelines should be used to maintain the natural topography of the installation (Figs. 7.X and 7.X).

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation.

- 7.5.1.1 Maintain natural ground slopes and elevations.
- 7.5.1.2 Align roadways and buildings along topographic lines.
- 7.5.1.3 Locate facilities that have expansive ground coverage on relatively flat terrain.
- 7.5.1.4 Use moderately sloping areas for buildings with less ground coverage area.
- 7.5.1.5 Avoid development on steep slopes.
- 7.5.1.6 Avoid development in natural drainage ways and flood plains.
- 7.5.1.7 Provide a reasonable balance of cut and fill.
- 7.5.2 Hydrology. The site planning team will consider the following hydrologic concerns for natural drainage corridors, floodplains, and waterways during the site planning process.

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation.



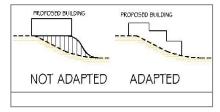


Fig. 7.X – Accommodate Natural Conditions

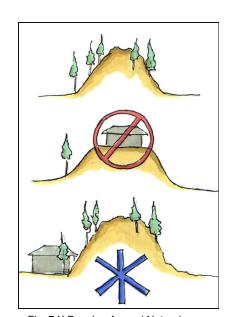


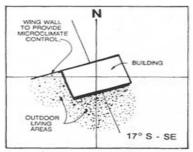
Fig. 7.X Develop Around Natural Landforms

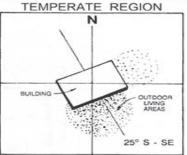
- 7.5.2.1 Preserve and maintain natural drainage areas and floodplains.
- 7.5.2.2 Limit development in floodplains to open spaces and recreation uses.
- 7.5.2.3 Preserve rivers, lakes, streams, or other waterways, and incorporate them into the design layout.
- 7.5.3 Climate. The installation will be designed in response to local climatic conditions to provide a more comfortable environment, and reduce the demands for heating and cooling.

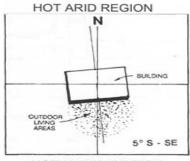
Installations - The following general guidelines are for the four (4) most prevalent climatic regions. Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation.

- 7.5.3.1 Cool Regions. Design and site development by maximizing the warming effect of solar radiation in winter and reduce the impact of cold winter winds.
- 7.5.3.2 Temperate Regions. Design and site development to balance the effects of seasonal thermal variations promoting both winter and summer cooling in terms of seasonal solar orientation and prevailing winds.
- 7.5.3.3 Hot Arid Regions. Design and site development to minimize solar heat gain and maximize shade and encourage humidity in outdoor spaces.
- 7.5.3.4 Hot Humid Regions. Design and site development to minimize solar heat gain and promote air movement and cross ventilation.
- 7.5.4 Views and Vistas. The installation will be design to preserve and enhance scenic and other attractive views and vistas, and to screen unattractive views and vistas. Visual extensions through open spaces provide a sense of orientation, relief, and enjoyment.

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation.







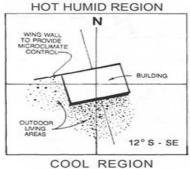


Fig. 7.X - Building oriented for passive solar heating and cooling

7.5.5 Vegetation. The installation will be designed to protect and preserve existing native vegetation. This preservation reduces maintenance and enhances sustainability. A preferred plant matrix (Plant Matrix) is included in this Installation Design Guide. (Also, see Section 10 – Landscape Design Component).

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation.

7.6 MANMADE SITE CONDITIONS

- 7.6.1 The site plan provides the locations of the manmade development that will occur on site. It establishes the spatial relationships as well as the relationships between manmade and existing natural features. Manmade site conditions include all development on the installation to include buildings, roadways, parking lots, walkways, walls, fences, utilities, and other facilities. Buildings, roadways, parking lots and above ground utilities are the primary manmade visual determinants.
- 7.6.2 The following site planning guidelines will be used in the visual and spatial review of the installation:
- 7.6.2.1 Cluster buildings to reduce impact on the natural environment, and reduce roadways and utility corridors needed to serve the development, however, at the same time giving full consider to antiterrorism and force protection requirements.
- 7.6.2.2 Locate large buildings in relatively flat areas to reduce the cut and fill and preserve the natural vegetation and drainage and orient to topography (fig. 7.X).
- 7.6.2.3 Minimize solar heat gain for cooling and maximize solar heat gain and retention for heating.
- 7.6.2.4 Site buildings with consideration for the microclimate conditions of the site that result in variances in wind or light because of adjacent land forms, structures, or trees.

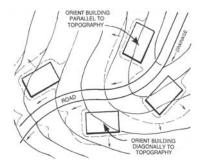


Fig. 7.X - Orient Buildings and Roads to Topography

- 7.6.2.5 Orient outdoors pedestrian areas for most comfortable exposure.
- 7.6.2.6 Utilize lighter colored building surfaces exposed to the sun and darker colors on recessed surfaces to absorb radiation.
- 7.6.2.7 Orient windows according to impact of climatic conditions.
- 7.6.2.8 Locate development on leeward side of hills.
- 7.6.2.9 Design and locate roads to provide a hierarchy of traffic carrying capacities.
- 7.6.2.10 Locate roads to blend with topography and vegetation.
- 7.6.2.11 Design and locate parking lots to minimize visual impact of broad expanses of pavement and vehicles.
- 7.6.2.12 Design and locate pedestrian walkways and bicycle paths to fit the physical environment, and provide a comfortable pedestrian experience, limiting conflicts with vehicular traffic (Fig. 7.X).
- 7.6.2.13 Locate trees and shrubs to buffer harsh natural conditions.
- 7.6.2.14 Deciduous material provides for sun in the winter and shade in the summer. Evergreen material provides windbreaks for cold north winds.
- 7.6.2.15 Design and locate site elements to blend with and enhance the physical environmental.
- 7.6.2.16 Force Protection requirements should be designed and located to blend with the physical environment.

7.7 ARMY STANDARDS

- 7.7.1 The cited Army Standards shall be met.
 - <u>Technical Manual (TM) 5-803-14, Site</u> <u>Planning and Design</u>

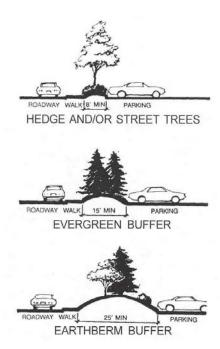


Fig. 7.X Screen Parking Areas

- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)

7.8 REFERENCES

- 7.8.1 The following references are provided for guidance.
 - <u>Unified Facilities Criteria (UFC) 2-600-01,</u>
 <u>Installation Design</u>, Chap 7
 - Army Regulation (AR) 200-2, Environmental Effects of Army Actions
 - <u>Technical Instructions (TI) 800-01, Design</u>
 Criteria
 - <u>Technical Instructions (TI) 801-02, Family</u> Housing
 - <u>Technical Instructions (TI) 804-01, Area</u> *Planning, Site Planning, and Design*
 - <u>Technical Manual (TM) 5-820-1/ Air Force AFM</u> 88-5, Chap. 1, Surface Drainage Facilities for Airfields and Heliports
 - Technical Manual (TM) 5-820-3/Air Force AFM 88-5, Chap. 3, Drainage and Erosion-Control Structures for Airfields and Heliports
 - Technical Manual (TM) 5-820-4/Air Force AFM 88-5, Chap. 4, Drainage for Areas Other Than Airfields
 - <u>Technical Manual (TM) 5-822-2, General</u>
 Provisions and Geometric Design for Roads,
 Streets, Walks, and Open Storage Areas
 - <u>Technical Manual (TM) 5-822-5, Pavement</u>
 <u>Design for Roads, Streets, Walks, and Open</u>
 Storage Areas

- Master Planning Instructions (MPI)
- Whole Building Design

Links

Go to Section 8

Go to Table of

Section 8 BUILDINGS DESIGN STANDARDS

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

8.1 INTRODUCTION

- 8.1.1 The design character of an installation's buildings affect the installations overall image. The visual analysis of buildings and related structures helps define visual zones and themes, and is an important part of an installation's assets and liabilities assessment.
- 8.1.2 The building design component encompasses the character of the buildings as well as the arrangement of buildings to one another and to their environment. In general, use architectural style, materials and colors indigenous to the region. The preservation of historically and culturally significant structures add to an installation's character and provide a sense of heritage.
- 8.1.3 The visual analysis of structure also includes concern for accessibility, use of materials, placement of entrances, incorporation of additions and renovations, the incorporation of plazas and courtyards, interior design and the appropriateness and quality of building maintenance.

Installations: Insert pictures with captions as appropriate - Fig. 8.1 etc.

8.1.4 This section provides the objectives and visual determinants that should be utilized to identify and assess the building design quality of the installation. The section also provides standards and guidance pertaining to the development and maintenance of the various interiors and exteriors of buildings on the installation.

8.2 BUILDING OBJECTIVES

- 8.2.1 Sustainability. The architectural style of existing and future buildings should reflect and reinforce the sustainability of the installation. Sustainable design reduces construction and maintenance cost and conserves energy through proper construction and materials selection. See Appendix D for a more complete discussion on Sustainable Design.
- 8.2.2 Building Design Objectives:
- 8.2.2.1 Adapt building designs to natural site conditions (Fig 8.X).
- 8.2.2.2 Design buildings in clusters to preserve land and reduce construction and maintenance costs.
- 8.2.2.3 Develop a coherent architectural style that results in the blending of new and old structures. However, when considering historical buildings one should be able to differentiate between the historic fabric and the new material.
- 8.2.2.4 Design buildings to include more floors in a vertical structure that results in a smaller footprint and more efficiently utilizes limited installation land areas.
- 8.2.2.5 Combine multiple activities in one building to reduce the number of buildings required and more efficiently utilize limited installation land areas.
- 8.2.2.6 Design multiple use facilities with the capability to quickly change interior layouts to accommodate changing requirements.
- 8.2.2.7 Use indigenous construction materials and practices that require less energy to produce and transport and may be recycled at the end of their usefulness.
- 8.2.2.8 Locate windows to maximize natural light, ventilation and outward views.

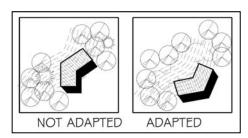


Fig. 8.X - Adapt Building Design to Site Conditions



Fig. 8.X - Use Indigenous Construction Materials Reduces Transportation Cost

8.2.2.9 Consider adaptive reuse of buildings once their initial use is no longer required.

8.3 STRUCTURAL CHARACTER

- 8.3.1 The character of installation architecture varies according to the use of the structure and when it was built. This use and age variation can result in character incompatibilities.
- 8.3.2 The difference in character may also result when the designer ignores the character and scale of adjacent buildings or uses an imitative technique unsuccessfully.
- 8.3.3 The coordination of structural character on an installation provides a consistent and coherent "sense of order" and "sense of place". This relationship of design comes from using compatible scales, massing, form, color, texture, materials, and fenestration. These design techniques can be utilized in the visual review and analysis of the installation. They are further explained below:
- 8.3.3.1 Scale. Scale refers to the size of a building facade in relation to humans. Buildings that include predominant vertical facades, which dwarf the individual, are defined as monumental in scale. Buildings with more horizontal facades designed to relate more to the size of the human figure are defined as human scale (Fig. 8.X). The scale of most buildings on installations should be more human than monumental. All new construction should be compatible in scale with adjacent buildings. Monumental architectural design is typically utilized for more ceremonial buildings, such as worship centers, headquarters complexes, and hotel facilities. These buildings make use of large, glazed areas at entrances and oversized fenestration elements to create a scale appropriate to the building's use. Scale and relief should be provided through roof form, fenestration, building articulation and landscape plantings.
- 8.3.3.2 Massing. Massing refers to the overall bulk or volume of a building or buildings (Fig. 8.X). The size and proportion of the individual buildings in a grouping of buildings should be designed to be proportionally compatible with the adjacent structures.

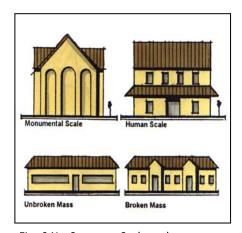
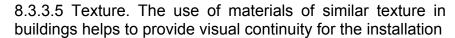


Fig. 8.X - Structure Scale and Massing

8.3.3.3 Form. The form of a building is determined by its size, mass, shape and proportions. The use of similar building forms provides continuity to the installation architectural impact. The result is a more aesthetically pleasing environment.

8.3.3.4 Color. The use of a color scheme that is consistent throughout the installation, where possible, results in a continuity of buildings and contributes to a sense of place (Fig. 8.X). However, color schemes throughout the installation often vary according to the visual zone and visual theme in which the structure is located.



8.3.3.6 Materials. The use of the same materials in the exterior finish and trim of buildings helps provide visual continuity.

8.3.3.6 Fenestration. Building fenestration includes features such as doors, windows, and building decoration details. These features should be similar in arrangement, design, size and proportion for architectural compatibility and visual consistency and continuity (Fig. 8.X).

8.4 BUILDING ENTRANCES

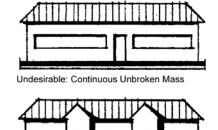
8.4.1 A building entrance is a primary feature of any building design. The entrance should be defined and recognizable as the point of entry regardless of the size or importance of the building (Fig. 8.X).

8.4.2 The entrance to a building should be in a prominent location and should be oriented toward the primary adjacent public spaces such as a courtyard, lawn, parking lot, or street.

8.4.3 The details of an entrance should be designed to provide continuity with other entrances to the building and the entrances of adjacent buildings.



Fig. 8.X - Color and Form Contribute to a Sense of Place



Projections and Residential Scale Openings Break Up Mass

Fig. 8.X - Fenestration breaks up mass

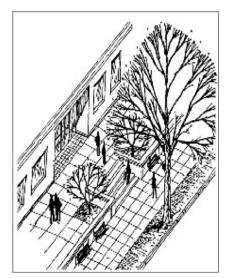


Fig. 8.X - Entrance is Positive Visual Experience

8.5 SERVICE AREAS

- 8.5.1 Service areas, such as loading docks and trash dumpsters, should be screened from the views of primary use areas such as entrances, courtyards, gathering areas, streets and parking lots.
- 8.5.2 Service areas should be screened as an enclosure by using walls and landscaping. Screen walls should be between six and eight feet high and should be in harmony with the adjacent building.
- 8.5.3 Trash and garbage collection areas must be located a minimum of 25 meters (82 feet) from troop billeting, family housing areas (containing more than 12 units), and standalone retail facilities. They will be placed a minimum of 10 meters (33 feet) from all other inhabited structures (UFC 4-010-01, Table B-1).

8.6 BUILDING ACCESSIBILITY

- 8.6.1 All structures or facilities, other than the exceptions mentioned below, must meet the <u>Americans with Disabilities Act Accessibility Guidelines (ADAAG)</u> and the <u>Uniform Federal Accessibility Standards (UFAS)</u> accessibility standards. The more stringent standards apply in the event of conflicting guidelines (Fig. 8.X).
- 8.6.1.1 Any building or facility that is specifically restricted by occupancy classification to use only by able-bodied personnel during the expected useful life of the building or facility need not be accessible [military exclusion is provided by [UFAS 4.1.4 (2)], but accessibility is recommended since the intended use of the facility may change with time.
- 8.6.1.2 In particular, the following facilities need not be designed to be accessible: unaccompanied personnel housing, closed messes, vehicle and aircraft maintenance facilities.

8.7 SEISMIC POLICY

8.7.1 The minimum performance objective for Army facilities is Substantial Life-Safety. To ensure compliance, seismic evaluations and mitigation of unacceptable seismic risks

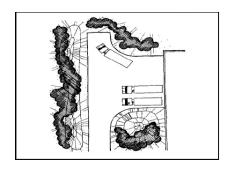


Fig. 8.X - Plants and Berms in Service Area Presents a Positive Visual Image

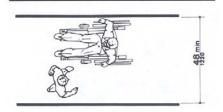


Fig. 8.X - Facilities Must Meet UFAS Standards

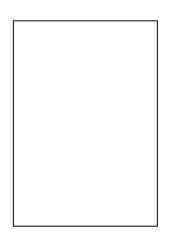


Fig. 8.X - *Installations:* Indigenous Structure

shall be performed. Higher levels of seismic protection for mission essential facilities will be considered in the evaluation.

- 8.7.2 Seismic evaluation. Guidance for the seismic evaluation of existing facilities is given in <u>TI 809-05</u>, <u>Seismic Design Evaluation and Rehabilitation for Buildings</u>. Buildings will have a seismic evaluation performed when:
 - A change in the building's use causes a change in the occupancy category, as defined in <u>TI 809-04</u>, <u>Seismic</u> <u>Design for Buildings</u>, to a category of greater importance (lower category number).
 - A project is planned which causes the capacity of the structural system or components to be reduced to 90 percent or less of original stability and strength.
 - A project will significantly extend the facility's useful life or will significantly increase the facility's value and the cost exceeds 50 percent of the current replacement value.
 - A facility is damaged or is deemed to be an exceptionally high risk to occupants or to the public.
- 8.7.3 Exceptions to Seismic Evaluations. Existing facilities are exempt from seismic evaluation if:
 - The original design was done according to the provisions of the 1982 or later edition of <u>TM 5-809-10</u>, or the 1988 or later edition of TM 5-809-1.
 - Replacement is scheduled within 5 years.
 - The facility is intended only for minimal human occupancy, and occupied by persons for a total of less than 2 hours a day.
 - The facility is a one or two family dwelling, two stories or less, located in zone 1 or 2, as shown in <u>TM 5-809-10</u>.
 - The gross area is less than 3000 square feet (275 square meters). Mitigation of unacceptable seismic risks. If the seismic evaluation determines that the facility does not meet Substantial Life-Safety or higher

performance standards, as appropriate, unacceptable seismic risks will be mitigated. Rehabilitation will be performed in accordance with TI 809-05.

- 8.7.4 New Facilities or Additions or Extension of Existing Facilities.
- 8.7.4.1 New facilities and additions or extension of existing facilities will be designed to provide the level of seismic protection required by TI 809-04.

8.8 INDIGENOUS STRUCTURES

Sustainability in the design and construction of buildings includes incorporating time-proven building designs that are indigenous to the region (Fig. 8.X). Indigenous design elements should be utilized in the design of new buildings.

8.9 HISTORIC ARCHITECTURE

- 8.9.1 The visual integrity of historic buildings or districts on the installation will be preserved and protected. The Army's management of historic properties is pursuant to the duties and responsibilities established by Congress under the National Historic Preservation Act (NHPA). The NHPA also created the National Register of Historic Places as the official listing of the nation's historic properties considered worthy of preservation. When working with historic properties the Army uses the following three categories:
- 8.9.1.1 Historic Buildings or Structures. These are significant buildings or structures, which are listed in or eligible for listing in the National Register of Historic Places.
- 8.9.1.2 Historic District. A distinct group of buildings, structures, or landscapes that possesses significance and are listed in or eligible for listing in the National Register.
- 8.9.1.3 National Historic Landmarks. Buildings, structures, or landscapes listed in the National Register, but also recognized as nationally significant. National Historic Landmarks can either be listed individually or as a district.
- 8.9.2 For further guidance use <u>Army Regulation 200-4</u> and <u>Department of the Army Pamphlet 200-4</u>. Specific requirements and recommendations for the treatment of

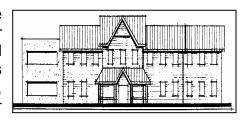
Fig. 8.X - *Installations:* Historical Structure

historic properties, are available in the National Park Service's <u>Secretary of the Interior's Standards for the Treatment of Historic Properties.</u> A working awareness of historic preservation policies and procedures followed by the Army Corp of Engineers can be found in the <u>Technical Instruction</u> (TI) 800-01, <u>Design criteria</u>, <u>Chp. 16</u>, <u>Preservation of Historic Structures</u>.

8.9.3 See Appendix M, Historic Preservation Guidelines.

8.10 RENOVATIONS AND ADDITIONS

When existing buildings are renovated or additions are constructed, the architectural character of the renovation or addition should be compatible with the architectural character of the existing building and the adjacent buildings (Fig. 8.X). This compatibility includes the use of materials, color, shape, size, scale and massing in the addition or renovation that blends with the architectural character of the existing structure. However, when renovating or adding to historical buildings one should be able to differentiate between the historic fabric and the new material.



Not This This Fig. 8.X - Renovation/Additions should be Compatible

8.11 PLAZAS AND COURTYARDS

Plazas and courtyards can be located as part of the primary entrance to a building, or as an extension of non-primary entrance areas to the outside (Fig. 8.X). Wide, paved entrance plazas need vehicular barriers.

8.12 BUILDING MAINTENANCE

Buildings designed and constructed to incorporate sustainable design criteria should minimize life cycle, energy and maintenance costs through proper selection of forms, materials and construction details.

8.13 INTERIOR DESIGN

8.13.1 Introduction. Inhabited spaces, that require the selection of furnishings or equipment, should be designed by professional interior designers. Interior design impacts the functioning and productivity of people. People spend the majority of their time inside, working, eating, sleeping, and relaxing. The productivity, comfort, and safety of the

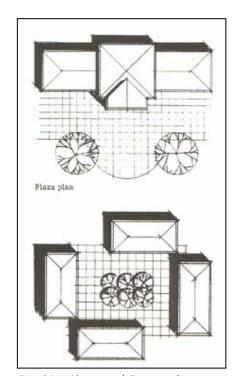
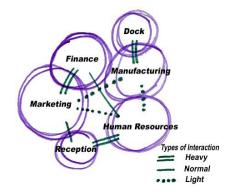


Fig. 8.X - Plazas and Courtyards

personnel living, working, or relaxing in the facilities they inhabit is directly related to the quality of interior design provided within the facility.

- 8.13.2 Interior design is required on building construction and renovation projects regardless of the funding source. General interior design guidance and interior design guidance for medical facilities and family housing is provided at the following websites.
 - General Guidance. <u>Design Guide (DG) 1110-3-122</u>, Design Guide for Interiors.
 - Medical Facilities. Interior design guidance for medical facilities is furnished in <u>Military Handbook</u> 1191, <u>Medical Military Construction Program Facilities</u> <u>Design and Construction Criteria</u>.
 - Family Housing. Interior design for family housing will be in accordance with <u>Technical Instruction (TI) 801-</u> 02, <u>Family Housing</u>.
- 8.13.3 <u>Engineering Regulation (ER) 1110-345-122, Engineering and Design, Interior Design</u>, defines projects that require interior design, design requirements and responsibilities of participants, and methods and funding for execution of interior design. For cost estimating see <u>Air Force Interior Design Guides</u>, <u>Chap. 3</u>, <u>Cost Estimating Guide</u>
- 8.13.4 Space Planning.
- 8.13.4.1 Space planning is the basic building block of the facilities program for administration and operational facilities. Army Regulation (AR) 405-70, *Utilization of Real Property* (Appendix D) provides numerical planning allowances and addresses the quantities for programming space for personnel and equipment.
- 8.13.4.2 Space planning takes into consideration the following; who will be using a space, how this space will be used, what activities will take place there, and the interaction of other people in the building. Professionally trained interior designers are best at gathering the required information to formulate a space utilization plan.

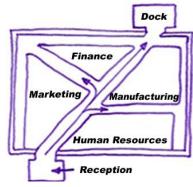


8.X - A typical Bubble Diagram Indicating Group Relationships

8.13.4.2.1 Bubble Diagrams. Bubble diagrams show the working relationship of one group to another (Fig 8.X). They do not represent a space plan or floor plan, but the relationship of organizations to one another. The adjacency requirements for individuals, user groups, and support functions to accomplish the product of service provided is analyzed. Bubble diagrams assist in organizing an existing facility as well as a new facility.

8.13.4.2.2 Blocking Diagram. An extension of the bubble diagram is the block diagram. The blocking diagram is made more regular and is for fit inside the proposed floor plan(Fig. 8.X).

8.13.4.2.3 The next step in the process is the development of the actual space plan. The layout of the space plan is detailed to the workstation level.



8.X - A Typical Blocking Diagram
Demonstrating The Fit Into The Floor
Plan

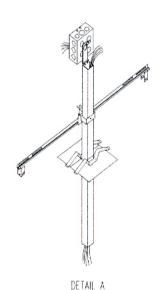
8.13.5 Electrical and Communications.

8.13.5.1 Electrical. Electrical power supply in the United States is available in a number of configurations, the most common of which are 120/240 volt single-phase three wire, 120/208 volt 3-phase 4-wire, and 277/480 volt 3-phase 4 wire.

8.13.5.1.1 Design standards for interior electrical systems are found in <u>Unified Facilities Criteria (UFC) 3-520-01</u>, <u>Interior Electrical Systems</u>. Compliance with this UFC is mandatory for the design of interior electrical systems. This UFC:

- Establishes criteria for the design of interior electrical systems.
- Establishes system-level design criteria.
- Establishes facility-level criteria for interior electrical systems,
- Provides a starting point for determining the applicable design criteria for a facility.

8.13.5.1.2 Facilities outside the United States must comply with the applicable host nation standards; refer to <u>Technical</u>



X - System fu

Fig. 8.X - System furniture utility column for electrical and communication distribution

Manual 5-688, Foreign Voltages and Frequencies Guide, for additional information.

8.13.5.2 Communications. Communications systems handle the transport of telephone and data networks (e.g. video, multi-media, teleconferencing, data transfer, facsimile transmission, and voice conversation).

8.13.5.2.1 The design criteria for interior wiring of communications and information system is found in the Installation Information Infrastructure Architecture (I3A) Design and Implementation Guide. This guide shall be used as the basis for designing both the premises distribution system (inside plant) and the outside plant cable distribution system for all new construction and renovation projects. The Installation Information Infrastructure Architecture (I3A) Design and Implementation Guide is Appendix A of <u>U.S. Army Corps of Engineers engineering technical letter (ETL) 1110-3-502, Telephone and Network Distribution System Design and Implementation Guide.</u>

8.13.5.3 Distribution. Distribution of electrical and electronic systems through a building is generally accomplished through branched distribution. A central chase or trunk will run the length or height of the facility, then horizontal distribution systems run from a central connection closet to the end user. This distribution may be overhead or underfoot, in many instances it is a combination of the two (Fig. 8.X).

8.13.6 Color.

8.13.6.1 Color plays an important role in the design of interior environments. Color has a large impact on how we feel and behave in a space. Its quality affects emotions directly and immediately. Successful interior designs harmonize form, space, light, and color.

8.13.6.2 Information on color and light, optical effects, basic color theory, color schemes, and applying color in facilities can be found in Corps of Engineers, <u>Design Guide (DG) 1110-3-122</u>, <u>Design Guide for Interiors</u>, Chap. 3, Light and Color and in the Air Force Interior Design Guides, Chap. 9, Color Principles, Part 1 and Part 2.

8.13.7 Acoustics.



Elimination



Isolation



Masking

Fig. 8.X - Control Noise Sources

8.13.7.1 Acoustics as an environmental variable significantly impacts the human impression of an interior environment. Productivity, speech intelligibility, privacy, safety, positive user attitude and response, and environmental comfort all depend on proper acoustic design. The interior designer is concerned with reducing unwanted noise and preserving desirable sound in a space. Sound can be controlled in the following three ways: eliminate the source, isolate the source, i.e. provide a barrier between the user and the source or mask the offending sound.

8.13.7.2 A discussion of the dynamics and control of acoustics can be found in the <u>Design Guide (DG) 1110-3-122</u>, <u>Design Guide for Interiors</u>, Chap. 5.

8.13.8 Interior Lighting.

8.13.8.1 Lighting will be designed with the work activities being performed in mind. Always supplement overhead lighting with task lighting and use architectural lighting in entrances, corridors, waiting rooms, and other spaces to light artwork and provide interest.

8.13.8.2 For Army installation buildings to achieve a high quality lighting environment, lighting equipment/systems selected must satisfy both performance and aesthetics (Fig 8.X). Factors for consideration in this selection are based on the following: lumens per watt, color temperature, color rendering index, life and lumen maintenance, availability, switching, dimming capability, and cost.

8.13.8.3 Lighting design approaches and lighting applications can be found in the following publications:

- <u>Technical Instructions (TI) 811-16, Lighting Design;</u>
 <u>Design Guide for Interiors, DG 1110-3-122 Chp. 5</u>
- Air Force Interior Design Guides, Chp. 10
- Unified Facilities Criteria (UFC) 3-520-01, Interior Electrical Systems, Appendix F.

8.13.8.4 Lighting Maintenance, Types, and Problem Solving. Information on lighting maintenance, types, and lamp trouble-shooting is found in <u>TM 5-683</u>, <u>Electrical Interior Facilities</u>, Chp. 9.

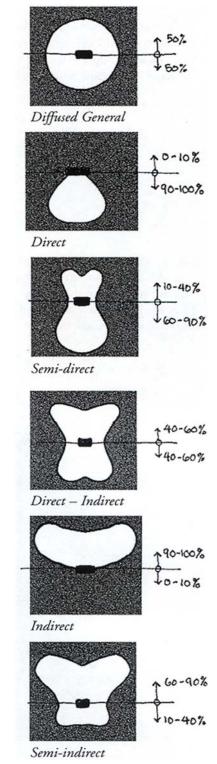


Fig. 8.X - Typical Distribution of Light

8.13.9 Finishes. Interior finish standardization is important for administrative and financial reasons. Standardization presents a unifying element throughout all buildings that is more cost effective, efficient, and easy to maintain.

8.13.10 Installation Finishes Standards. Installation finishes standards are found in <u>Appendix I, Interior Finishes Standards</u> of this guide.

Installations - Expand paragraph as required and develop Appendix I, Interior Finishes Standards, showing, interior finish color schemes and interior finish specifications for particular areas of the installation, i.e. Administrative, Barracks, Community Support, Recreation Facilities, Industrial etc.

Note: Interior finishes include flooring (carpet, title, resilient flooring, recessed walk off mats, concrete), walls (wall base, paint, vinyl wall covering, ceramic tile), counter and surface material (restrooms, cabinetry), doors, ceilings and lighting. Include pictures where possible and cross-reference materials to a "Finish Materials Listing for Products Specifications".

8.13.11 Furnishings. Furnishings are elements added to a building for utility or ornamentation following construction. These include furniture such as chairs, desks, sofas, and tables and also cabinetry, window treatments, signage, accessories, art, and plants (Fig. 8.X). When selecting furnishings for an interior environment, care should be taken to include their design as an integral part of the overall concept and to ensure coherency between architecture, materials, furniture, art, and signage. The following paragraphs discuss the various furnishings components and give guidance on the programming, acquisition, functionality, and maintenance of the various components.

8.13.11.1 Furniture. Furniture systems are a wide range of furniture types comprised of components to create a custom designed work environment to meet specific functional needs. Furniture includes seating and casegoods. Casegoods are furniture elements constructed from box-like components. These include desks credenzas, file cabinets, etc. Case goods fall under two major categories: conventional and modular. Conventional casegoods are delivered as pre-assembled, ready-to-use products. Modular



Fig. 8.X - Conventional Casegoods

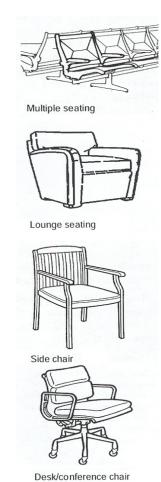
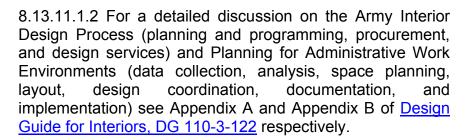


Fig. 8.X - Contract Seating, Various Chair Classes

casegoods are manufactured as separate pieces that may be grouped into a number of different arrangements.

8.13.11.1.1 Systems Furniture. Systems furniture is ergonomically designed to meet a variety of conditions and requirements. Careful planning is critical during the initial stages of designing new systems furniture layouts. Power and communications requirements must be determined and planned so they are available at the locations were they are needed. Provisions for furniture systems electrical and data requirements must be made a part of the construction documents. See paragraphs 8.13.5.1.1 and 8.13.5.2.1 for interior design standards for electrical and communications wiring respectively. Surface mounted conduit and power poles are unsightly and should be avoided.



8.13.11.1.3 Budgeting for Furniture Systems. Furniture systems represent a significant percentage of a project. Furniture systems are O&M funded and should be included in the project scope along with such items as built-in casework. Furniture systems are listed on the DD Form 1391 as a non-add entry in Block 9 for "Equipment Provided for Other Appropriations". In Block 12b, the furniture systems should be as an O&M funded item, the fiscal year the funds are requested and the line item cost. Accessories can amount for a significant portion of the furniture systems package and should be budgeted with the basic system components.

8.13.11.1.4 Systems Furniture Design Guidelines.

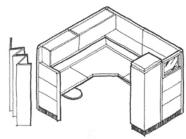
8.13.11.1.4.1 General.

 During the initial planning of new systems furniture, consider the condition and appearance of existing paint, wall coverings, carpet, and base of the area.





Stackable Panel System



Clusters



Desk-Based Systems



Fig. 8.X - Systems Furniture

- When planning the location of office equipment and break areas, do not place heat generating devices, such as coffee makers or copiers, near a thermostat.
- Circulation paths should be clear and easy to navigate.
- Topics that should be considered when designing new systems furniture layouts include:
 - Function of the office
 - Adjacencies of personnel and activities
 - Meeting and conference room requirements
 - Individual storage needs
 - Areas for common use office equipment such as the copier and fax
 - Reception area with waiting and guest seating space
 - Special furniture or needs of a particular office, such as drafting tables or extra storage space
 - Communications equipment
 - Task lighting, daylight, and ambient lighting
 - Special security requirements
 - Budget constraints
 - Flexibility to allow future changes
 - Schedules of design, delivery, and installation
 - Air conditioning
 - Acoustic performance requirements

8.13.11.1.4.2 Panels.

 Full height panels should be used only in areas with a specific need for increased privacy or separation,

- such as conference rooms, break areas, and certain private offices.
- Provide glass panels in corners and at windows to open up the space and allow natural light to filter into the center of the space
- Provide access panels in the systems furniture to allow for communications connection
- Panels should generally not exceed 66 inches in height in an open office area. Taller panels cut off air circulation, block views and natural light, and create a closed-in feeling.
- The location and use of taller panels must be carefully planned and coordinated because they can interfere with the proper functioning of air conditioning diffusers, fire sprinklers and smoke detectors, lighting fixtures, switches, thermostats, and sensors.
- Panels should not block service access to mechanical, electrical, or telephone equipment.
- Do not install panels in front of windows, as they will block natural light for the entire area. Panels installed perpendicular to windows should be installed at a window mullion.

8.13.11.1.4.3 Color and Texture.

- To maintain a professional atmosphere, the style and types of systems furniture should be consistent throughout the area.
- The materials and colors of the panels and chairs should be durable. They should be heavy-duty and stain resistant.
- The fabric on the systems furniture panels should harmonize with the overall building color scheme.

8.13.11.2 Window Treatments.

8.13.11.2.1 Window treatments serve many purposes in an interior environment. They provide privacy, light and sun control, reduced energy consumption, and decreased sound

transmission. The type of treatment, as well as the type of material used, will determine the effective of the treatment in and give instance. The following should be taken into consideration when selecting fabric type:

- Sheer or semi-sheer fabrics will provide minimum privacy, shade, and energy conservation.
- Heavy, opaque fabric and hard treatments should be used only where total light exclusion is required.
- Full, soft treatments will absorb more sound than hard treatments.

8.13.11.2.2 Window treatments should complement and support the interior design of a space (Fig. 8.X). Window treatments also conceal architectural defects, or change the apparent size, shape and character of a room. Consider the following factors when making a window treatment selection:

- Light control requirements
- Architectural style
- Historical context

8.13.11.3 Signage.

8.13.11.3.1 Signage may be informational, directional, or regulatory. Informational signage provides the user with information and includes room or area labels, bulletin boards, menus, artwork descriptions, and emergency information. Directional signage directs circulation and provides orientation. It includes entry directories, directional arrows, and maps. The purpose of regulatory signage is control: providing prohibitions, warnings, emergency instructions, and use restrictions (Fig. 8.X).

8.13.11.3.2 Interior signage is covered in detail in <u>Technical Manual (TM) 5-807-10</u>, <u>Signage</u>. The manual includes graphics for the following: directional, identification signs, information, and pictograms.

8.13.11.4 Accessories.

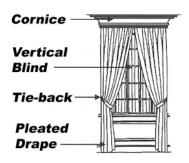


Fig. 8.X - Window Treatments Should Complement the Interior Space

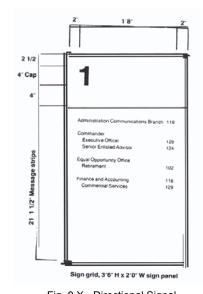


Fig. 8.X - Directional Signal Directs Circulation

8.13.11.4.1 Accessories may be either functional or decorative. Whatever the purpose, accessories serve to make a room appear inviting and personal.

8.13.11.4.2 Functional Accessories. These accessories include letter trays, coat racks, lamps, product displays, magazine racks, brochure racks, and message boards. This group of accessories should be selected for utilitarian aspects as well as aesthetic qualities that may contribute to the total design concept. Repetitive elements can act as unifiers and help tie the accessories to the design theme.

8.13.11.4.3 Decorative Accessories. Decorative accessories are objects such as artwork and plants.

8.13.11.5 Art. The preparation of artwork to be displayed and positioned in an interior space involves many important decisions. The designer must work closely with the user to determine placements that are satisfactory for both functional and visual composition. Some of the factors to be taken into consideration in the selection of are:

- Quality (posters, prints, original art),
- Subject matter,
- Medium (photography, paper, oil, etc.),
- Size,
- Placement,
- Method of display (permanent collection or rotating program),
- Lighting, and
- Integration with design scheme.

8.13.11.6 Plants.

8.13.11.6.1 Plants add color, texture, and variety of form and shape to the interior. They bring a natural element to an interior space. They are used for focal points, screen, and for psychological effect. Increasingly, plants are being incorporated into the interior environment for the health and well-being of the user, as well as enrichment of the space.



Like This



Not This

Fig. 8.X - Decorative Accessories Can Add a Sense of Uniqueness

8.13.11.6.2 When selecting plants, their light, water, and temperature needs, continuing care requirements, and ease of replacement must all be considered. Also, the types and amount of light the space has (direct or indirect) daylight, fluorescent, or incandescent must be considered. Plants should not be positioned such that their location presents a problem when watering.

8.13.11.6.3 Detailed information on interior planting to include design considerations (light requirements, temperature, atmosphere considerations, and planters), plant maintenance, and a listing of recommended plants can be found at the following web locations (Air Force Interior Design Guides, Chapter 8):

- Design Considerations
- Maintenance
- Recommended Plant List

8.13.12 Unified Facilities Guide Specifications. See the "Division 12 - Furnishings" section on the <u>Construction Criteria Base</u> website for Unified Facilities Guide Specifications for furnishings.

8.13.13 Installation Furnishings Standards. Installation furnishings standards are found in <u>Appendix J, Interior Furnishings Standards</u> of this guide.

Installations - Expand paragraph as required and develop Appendix J showing guidelines for each of the furnishing components [furniture (chairs, desk, sofas, tables, and cabinetry), window treatments, signage, accessories, art, and plants] for particular areas of the installation, i.e. Administrative, Barracks, Community Support, Recreation Facilities, Industrial etc.

8.13.14 Interior Operations Policies. To preserve the quality of facilities, operations policy is set between the user and the installation management. The user is responsible for preserving the visual appearance of the facility, and installation management is responsible for providing maintenance needed to preserve facility quality. Interior operations policies address the following issues (See Appendix N, Housekeeping Rules (Example):

- Housekeeping responsibilities.
- Policy to prevent and eliminate visual clutter.
- Carpet cleaning, repair, and replacement policy.
- Height restrictions for partitions and furniture.
- Policy on buildings modifications including: partitions, painting, window treatment, HVAC, lighting, and the installation of communications and electric wiring.
- Maintenance of directories and signage.
- Smoking and eating locations.
- Procurement information on matching or compatible furniture.
- Policy on personalization and plants.
- 8.13.15 Interior Appearance Policy. The following are Army standards to follow. *Installations:* Expand paragraph as required.
 - Keep work areas cleared of clutter. Cleanup, throw away.
 - Avoid hanging things in the work area. Find another way to refer to organization charts, personnel listings, and calendars, other than having them hung on walls or partitions except framed artwork, diplomas, awards, etc.
 - Notes and references hung on partition walls should be kept below the height of the partitions. Some things may be mounted on the partitions by hooking into the metal supports between the partitions, but not by hooking into the fabric.
 - Anything not contributing to the overall décor of the work area should be put in a drawer or on a shelf behind a closed door.
 - Do not overwhelm the work area décor with an excess of plants or personal artifacts.

- Thin out your files.
- Keep walkways into work areas open and free of clutter. Do not store things on the floor, or on top of shelves, or partitions.
- Office chiefs should consider the overall office appearance and visual contrasts between work areas.
- Be sure that anything you do in your work area contributes to color coordination, rather that detracts from it.
- Keep vacant workstations and common areas clean.
 Do not use them as a dumping area for things you do not know what to do with.

8.14 EXTERIOR BUILDING MATERIALS AND COLOR

- 8.14.1 Exterior Building Materials.
- 8.14.1.1 Building materials make a major contribution to the scale, color, texture and character of a military installation. A limited palette of durable, low maintenance materials should be used that, while encouraging a variety of expression, provides a cohesive and consistent architectural character through the installation and within each visual zone. Material should reflect the function of a building, and its hierarchy within the installation.
- 8.14.1.2 Use the following guidelines when selecting exterior building materials.
- 8.14.1.2.1 Choose materials for their longevity and maintenance characteristics.
- 8.14.1.2.2 Use materials with integral colors avoid painting exterior colors.
- 8.14.1.2.3 Use installation standard colors for exterior walls. Add accent colors sparingly. Accent colors can be used in recesses and to accent certain portions of a buildings façade.

Fig. 8.X - *Installations:* Pictures of Buildings in Various Visual Zones

- 8.14.1.2.4 Use pre-finished material where possible gutters, window frames, doorframes, etc.
- 8.14.1.2.5 Use blended colors on pitched roofs.
- 8.14.2 <u>Appendix K, Exterior Materials Charts</u> list the building materials applicable to the visual zones listed in the following paragraphs:

Installation: Duplicate the Exterior Materials Chart page as many times as necessary to have an exterior building materials file for each visual zone.

8.14.2.1 Example, Family Housing Visual Zone

Installation: List each of your visual zones and link to Appendix K.

- 8.14.2.2 Example, Community Support Visual Zone, Etc.
- 8.14.2.3 *Installation:* Keep adding visual zones as applicable.
- 8.14.3 Exterior Building Color.
- 8.14.3.1 Color charts have been developed for specific geographical areas giving consideration to climate, geography, culture, facility function, historical context, architectural character, etc. Color changes will be implemented during normally scheduled paint cycles. (See Appendix L, Exterior Color Charts.)
- 8.14.3.2 Color is closely linked to the appropriate selection of exterior building materials and is a critical design element in relating adjacent buildings and creating a compatible visual environment within an installation.
- 8.14.3.3 Historic Buildings. Repaint the building or structure to match the existing colors or colors that can be documented to have been used on that building.



Fig.8.X - The Geographical Areas for Exterior Colors

8.15 KEY FACILITY TYPES STANDARDIZATION

- 8.15.1 The Assistant Chief of Staff for Installation Management (ACSIM) establishes Army facility standards and approves deviations from the standards.
- 8.15.2 Residential Communities Initiative.
- 8.15.2.1 The intent of the Residential Communities Initiative (RCI) is to improve the housing for military families by providing quality housing that is built in attractive neighborhoods.
- 8.15.2.2 The Military Housing Privatization Initiative (MHPI) legislation allows developers to build housing to local standards. In those areas where local standards do not meet the quality of life requirements of soldiers, the Community Development and Management Plan (CDMP) process allows a negotiated determination of those standards. To ensure a uniform level of quality throughout RCI, Headquarters, Department of the Army has developed a "Quality Standards for New and Replacement Residential Communities Initiative (RCI) Family Housing" to be used as reference points during CDMP preparation.
- 8.15.2.3 All RCI projects planned or under design will meet the "Gold" SPiRiT rating (as of 18 March 2003). See Assistant Secretary of the Army memorandum Subject: Sustainable Design and Development Requirements, dated 18 March 2003.
- 8.15.3 Department of the Army (DA), Facilities Standardization Program.
- 8.15.3.1 Under the DA Facilities Standardization program, standard design packages are developed for facility types that are repetitively designed and constructed at Army installations. These design packages are developed to the definitive design level (10%-15%) and once approved are mandatory for Army MILCON.
- 8.15.3.2 Currently, there are thirty one (31) DA standard design packages. Headquarters, U.S. Army Corps of Engineers has established eight (8) Centers of

Standardization to develop and maintain the definitive and design packages. See <u>Appendix P</u>, <u>DA Facilities Standardization Program Centers of Standardization</u> for a list of the various centers and the facility type assigned to each center. (Centers of Standardization homepage.)

- 8.15.4 Unaccompanied Personnel Housing (Army Barracks Modernization Program).
- 8.15.4.1 The Army's Barracks Modernization Program is based upon a whole community approach providing modernized private living and sleeping areas for soldiers as well as a more functional work environment. This is being realized with the construction and renovation of barracks, and associated Company Operations Facilities (COF), Battalion Headquarters (BN HQ) and Brigade Headquarters BDE HQ), and Dining Facilities (DEFAC). For a detailed discussion of the Army Barracks Modernization Program see the Army Barracks Master Plan. The Army Barracks Master Plan only includes requirements for activity duty permanent party soldiers' barracks.
- 8.15.4.2 Army Barracks Standards. The Army Barracks Modernization Program design criteria gives commanders and contractors the direction to incorporate best business practices around a modular floor plan. The Army Barracks Master Plan, Appendix I. Army Barracks Standards. promotes barracks with an appropriate balance between private and common areas. The Vice Chief of Staff of the Army (VCSA) specified the "New Army Construction Criteria" in his Memorandum Subject: New Barracks Construction Criteria, dated 11 July 2002 in which he strongly endorsed the new standards. The criteria was further revised in Memorandum Subject: Revised Barracks Construction Criteria, dated 1 May 2003 which makes the following four changes to the Army Barracks Standards:
 - Establishes the two-bedroom/one bath module as the standard module:
 - Requires installation of a stove or cook top;
 - Requires laundries in the barracks; and
 - Eliminates the separate solider community building.

See the above memorandum for detailed guidance.

- 8.15.4.3 Furnishings.
- 8.15.4.3.1 Acquisition of new furnishings is planned and accomplished in concert with the facility design and construction schedule so that delivery of the new furnishings coincides with the beneficial occupancy date (BOD).
- 8.15.4.3.2 The U.S. Army Interior Design Manual (IDM) for Single Soldiers provides guidance to help furniture managers prepare order packages. The manual uses standard Army furniture specifications; i.e. medium oak wood furnishings or acceptable wood/steel alternatives; construction and fabric specification, and specific information for authorized items of furniture. The manual also contains standard living/sleeping room arrangements, and SCB plans with color schemes. The manual includes information on waiver requirements, the procurement process, order forms, and final inspection checklist.
- 8.15.4.4 Construction design criteria for COFs, BBN HQ buildings, BDE buildings, and DEFAC facilities can be viewed on the web at ProjNet.
- 8.15.5 Army Lodging.
- 8.15.5.1 The Army Lodging Standards promote economies in serving the Army traveler, but not at the expense of quality or service. The standards define the facilities and the level of service the Army traveler should expect.
- 8.15.5.2 The following standards provide the level of service that a guest should expect when they travel to an Army installation. That expected level of service should be consistent from installation to installation. The following documents provide the service, operations, and facilities standards for Army Lodging.
 - Army Lodging Standards for Service
 - Army Lodging Standards for Operations
 - Army Lodging Standards for Facilities
- 8.15.6 Morale, Welfare, and Recreation (MWR) Branded Theme Operations.

- 8.15.6.1 The U.S. Army Community and Family Support Center (CFSC) through its Theme Operations, offers comprehensive theme packages pertaining to restaurants and entertainment centers. The packages are customized to the installation.
- 8.15.6.2 CFSC will conduct an assessment for market viability, provide architectural designs, and other promotional items. Information on the CFSC Branded Theme Operations to include how to get a theme operation, management support and food service support is located on the CFSC website at the <u>Army Brand Theme Operations Home Page</u>.
- 8.15.7 Range Standards.
- 8.15.7.1 The Army Sustainable Range Program (SRP), proponent is HQDA Office Deputy Chief of Staff Operations, ODCSOPS/G3 (DAMO-TRS), phone number (703) 692-6410. To contact SRP technical support call (256) 895-1535 or e-mail RTLP@HND01.usace.army.mil.
- 8.15.7.2 The SRP develops and manages standard designs for Army Ranges in accordance with AR 210-21 and Training Circular 25-8 Army Training Ranges. The Range Standards are available on the following web pages.
 - Design Manual for Remoted Target Systems (RETS) Ranges, <u>CEHCN 1110-1-23 Manual</u>.
 - Revised Range Design/Construction Interface Standards
 - Unexploded Ordinance Considerations in the Planning, Design, and Construction of Ranges, Supplement to CEHNC 1110-1-23 Manual

8.16 PHYSICAL SECURITY REQUIREMENTS

To assure the required physical measures are met the installation Provost Marshall or Physical Security Officer will be coordinated with during the planning, design, and construction of all construction projects. (AR 190-13, The Army Physical Security Program, Para 1-26) See Section

12, Force Protection for a more detailed discussion regarding Antiterrorism measures.

8.17 SALE AND OUTLEASE OF ARMY ASSETS

- 8.17.1 In an effort to offset some of the impacts of constrained resources, the Army has implemented initiatives that improve cost effectiveness and efficiency of installation operations. To the extent permitted by law, funds that become available as a result of these initiatives are retained by, or returned to, garrison commanders.
- 8.17.2 The Office of the Assistant Secretary of the Army for Financial Management and Comptroller (OASA (FM&C)) has developed the "Sales and Outlease of Army Assets Installation Guide" to assist garrison commanders in using the sales and outlease program. The guide provides an overview of major policies, procedures, and responsibilities pertaining to the following three major initiatives of the program:
 - Sale of Real Property;
 - Outlease of Real Property; and
 - Outlease of Personal Property.

The guide provides hyperlinks to Sale and Outlease governing regulations and legal and informational references.

8.18 ARMY STANDARDS

- 8.17.1 The cited Army Standards shall be met.
 - Army Regulation (AR) 420-70, Buildings and Structures
 - Unified Facilities Criteria (UFC) 3-520-01, Interior Electrical Systems
 - <u>Unified Facilities Criteria (UFC) 4-010-01, DoD</u>
 <u>Minimum Antiterrorism Standards for Buildings</u>

- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)
- <u>Secretary of the Interior's Standards for the Treatment of Historic Properties</u>
- U.S. Army Corps of Engineers Engineering Technical Letter (ETL) 1110-3-502, Telephone and Network Distribution System Design and Implementation Guide
- Standards of Seismic Safety for Existing Federally Owned and Leased Buildings
- Army Barracks Master Plan, Appendix I, Army Barracks Standards
- Memorandum Subject: Revised Barracks
 Construction Criteria, dated 1 May 2003
- Quality Standards for New and Replacement Residential Communities Initiative (RCI) Family Housing
- Army Lodging Standards
- Design Manual for Remoted Target Systems (RETS) Ranges, <u>CEHCN 1110-1-23 Manual</u>
- Unexploded Ordinance Considerations in the Planning, Design, and Construction of Ranges, Supplement to CEHNC 1110-1-23 Manual
- Revised Range Design/Construction Interface Standards

8.19 REFERENCES

- 8.18.1 The following references are provide for guidance.
 - <u>Army Regulation (AR) 190-13, The Army Physical Security Program</u>

- Army Regulation (AR) 200-1, Environmental Protection and Enhancement
- Army Regulation (AR) 200-2, Environmental Effects of Army Actions
- Army Regulation (AR) 200-4, Cultural Resources Management
- Army Regulation (AR) 405-45, Real Property Inventory Management
- Army Regulation (AR) 405-70, Utilization of Real Property
- Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap 8
- Unified Facilities Criteria (UFC) 1-200-01, Design: General Building Requirements, 31 July 2002
- Engineering Regulation (ER) 1110-345-122,
 Engineering and Design, Interior Design
- Department of the Army Pamphlet (DA PAM) 200-4,
 Cultural Resources Management
- <u>U.S. Army Corps of Engineers, Design Guide (DG)</u>
 1110-3-122, Design Guide for Interiors
- Department of Defense (DoD) Interior Design Website
- <u>Military Handbook 1191, Medical Military Construction</u> Program Facilities Design and Construction Criteria
- Technical Instructions (TI) 800-01, Design Criteria
- <u>Technical Instructions (TI) 809-04, Seismic Design for Buildings</u>
- <u>Technical Instructions (TI) 809-05, Seismic Design</u>
 <u>Evaluation and Rehabilitation for Buildings</u>
- Technical Instructions (TI) 811-16, Lighting Design
- <u>Technical Manual (TM) 5-683, Electrical Interior</u> Facilities

- <u>Technical Manual (TM) 5-688, Foreign Voltage and Frequencies Guide</u>
- <u>Technical Manual (TM) 5-809-10/Navy NAVFAC P-355/Air Force AFM 88-3, Chap 13, Seismic Design for Buildings</u>
- <u>Technical Manual (TM) 5-809-10-2/Navy NAVFAC P-355.2/Air Force AFM 88-3, Chap 13, Sec B, Seismic Design Guidelines for Upgrading Existing Buildings</u>
- Army Barracks Master Plan
- Air Force Sustainable Facilities Guide
- Air Force Interior Design Guides
- Office of the Assistant Secretary of the Army for Financial Management and Comptroller (OASA (FM&C)) <u>Sales and Outlease of Army Assets</u> -<u>Installation Guide</u>
- Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), <u>Sustainable Design</u> and <u>Development Website</u>
- U.S. Army Corps of Engineers Engineering Technical Letter (ETL) 1110-3-502, Telephone and Network Distribution System Design and Implementation Guide
- Whole Building Design Guide
- Unified Facilities Guide Specifications (UFGS),
 "Division 12 Furnishings", Construction Criteria Base

Links

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Section 9 CIRCULATION DESIGN STANDARDS

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

9.1 INTRODUCTION

- 9.1.1 The image of the installation is greatly determined by the design and location of roadways, walkways, entrances and parking lots. The primary roadway system and parking lots utilize considerable amounts of land and are a visually dominant element of any installation. The location of primary circulation elements is presented in Section 7, Site Planning. This section discusses the details of circulation design and impacts.
- 9.1.2 The circulation system provides a primary vantage point from which all installations are viewed. Safe and efficient vehicular movement results in better orientation and contributes to the development of a positive environment for installation personnel and visitors. The circulation component is used to assess the circulation elements of the installation and identify specific characteristics that provide visual zone and theme identity.

Installations: Insert pictures with captions as appropriate - Fig. 9.1 - etc.

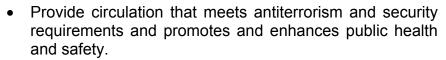
9.1.3 Roadways, pedestrian walkways, and bicycle trails will be designed to provide a hierarchy of circulation design and carrying capacity. Functionally, a hierarchical network can be created that separates incompatible types of traffic. This separation of traffic promotes sustainability because it results in more efficient energy consumption.

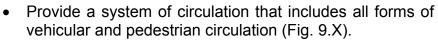
9.1.4 Visually, the circulation hierarchy can be reinforced through design, planting, signage and lighting to promote a more attractive visual experience and promote a sense of orientation.

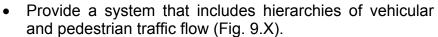
Fig. 9.X - Vehicular/Pedestrian System

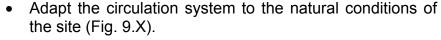
9.2 CIRCULATION OBJECTIVES

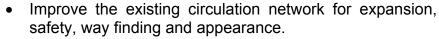
The goal for the circulation system on the installation is to establish a sustainable system that promotes aesthetic appeal, environmental preservation, and energy conservation while providing safe and efficient circulation. The objectives below should be followed to achieve a sustainable circulation system:











 Promote maintenance and repair of existing and proposed circulation systems.



Fig. 9.X – Separate Pedestrian/Bicycle/ Vehicular Access

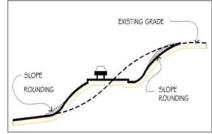


Fig. 9.X – Adapt Circulation to Topography

9.3 ROADWAY HIERARCHY

9.3.1 The roadway network of the installation should functionally and visually reflect a logical hierarchy of traffic circulation. The network should separate types of traffic by function and volume, ranging from through traffic to local traffic. The visual character of each segment of the network should appropriately convey its role and function within the overall network. The basic network is classified as follows in

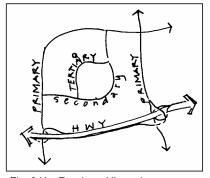


Fig. 9.X – Roadway Hierarchy

terms of the type, character, and appearance of the road (Fig. 9.X).

- 9.3.1.1 **Highways**. Highways provide primary high-speed traffic access to, around, or through a military installation. The design includes:
- 9.3.1.1.1 Continuous, relatively straight or large radii curvilinear alignments that carry high-speed through-traffic movement between major activity centers within a region.
- 9.3.1.1.2 A minimum of two lanes on each direction typically divided by a median or median divider.
- 9.3.1.1.3 Alignments that border lane use areas rather than bisect them, and green space buffers between the road and adjacent uses.
- 9.3.1.1.4 Controlled access onto the road.
- 9.3.1.1.5 Either grade-separated or at grade channelized intersections with traffic signal controls.
- 9.3.1.1.6 Shoulders for emergency stopping but strict prohibition of on-street parking.
- 9.3.1.1.7 Street signing, lighting, and planting that reflects the high-speed nature of traffic movement.
- 9.3.1.2 **Primary Roadways**. These are arterial routes that connect major activity centers, provide the primary access through the installation, and provide the means by which most people view the installation (Fig. 9.X). These roadways often traverse the entire installation and carry the heaviest volume of traffic that results in high speed and high visibility corridors. Direct access to this type of road should be restricted to crossing at major intersections. Primary roadways are designated as boulevards in urban areas and as avenues in rural and suburban areas (Fig. 9.X). Design characters include:
- 9.3.1.2.1 Continuous, through-traffic alignments that are relatively straight or large-radii curvilinear to handle moderate to heavy traffic.

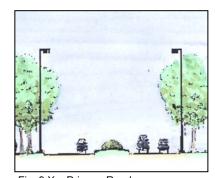


Fig. 9.X – Primary Roadway

- 9.3.1.2.2 Alignments that form the boundary between different land uses are preferable to alignments that transect a land use zone.
- 9.3.1.2.3 Two or more moving lanes in each direction typically divided by a median.
- 9.3.1.2.4 Controlled access and a minimum of curb cuts limited to entranceways to major facilities or building groups.
- 9.3.1.2.5 At-grade intersections with signal controls.
- 9.3.1.2.6 On-street parking prohibited.
- 9.3.1.2.7 Medians, street lighting, signing, and planting that enforces the moderate- to-high speed nature and importance of the road.
- 9.3.1.2.8 Curbs, gutters, and sidewalks provided in all cantonment area and other residential areas with densities greater than two dwelling units per acres.
- 9.3.1.3 **Secondary Roadways**. Secondary roadways serve as connectors between primary roads and tertiary roads and typically connect primary roads to adjacent land use zones (Fig. 9.X). Secondary roads accommodate moderate to slow traffic speeds with one moving lane in each direction. On-street parking should be prohibited and left-turn lanes provided at intersections with primary roads. Design characteristics include:
- 9.3.1.3.1 Continuous through-traffic alignment between primary roads, either straight or curvilinear based upon the design speed topography and land pattern.
- 9.3.1.3.2 Direct access to abutting property.
- 9.3.1.3.3 A maximum of two moving traffic lanes in each direction, either undivided or a boulevard with planted median.
- 9.3.1.3.4 On-street parking generally prohibited.
- 9.3.1.3.5 Sidewalk separated from the road by a planting strip.
- 9.3.1.3.6 Street lighting, signing, and planting that reflects the moderate-to-slow speed nature of traffic and the character of the land use area they are in.
- 9.3.1.3.7 Curbs, gutters, and sidewalks provided in all cantonment area and other residential areas with densities greater than two dwelling units per acres.



Fig. 9.X - Boulevard

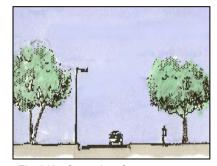


Fig. 9.X – Secondary Street



Fig. 9.X - Improved, Visually Appealing Streetscape

- 9.3.1.4 **Tertiary Roadways**. Tertiary roadways provide access to individual facilities, parking and service areas. They are designed to handle low speed, low volumes of traffic, with one lane in each direction. Tertiary roadways make use of "T" intersections and cul-de-sacs to reduce through traffic, promote safety, and limit noise impacts from truck traffic. Design characteristics include:
- 9.3.1.4.1 Alignments designed to discourage through-traffic.
- 9.3.1.4.2 Alignments are relatively short straight or curvilinear keeping with topography, land use, and slow speed nature of traffic.
- 9.3.1.4.3 Generally a maximum of two moving traffic lanes, one in each direction.
- 9.3.1.4.4 On-street parking allowable on an infrequent overflow basis by the addition of a parallel parking lane or bay.
- 9.3.1.4.5 Curbs, gutters, and sidewalks provided in all cantonment area and other residential areas with densities greater than two dwelling units per acres.
- 9.3.1.4.6 Sidewalks maybe limited to only side, depending upon need.
- 9.3.1.4.7 Street lighting, signing, and planting in character with slow speed nature of traffic and the land use area within which the road is located.
- 9.3.1.5 **Cul-de-sacs**. Cul-de-sacs are short dead-end tertiary streets located primarily in residential areas (Fig. 9.X). They connect at one end to a tertiary or secondary street and have a turnaround at the other end, providing direct access to a abutting property while preventing through traffic. Design characters include:
- 9.3.1.5.1 Short, straight or curvilinear alignment to serve abutting property (Fig. 9.X).
- 9.3.1.5.2 Generally a maximum of two traffic lanes, one in each direction.
- 9.3.1.5.3 Generally a maximum length of 600 feet, or less except in areas where terrain and low density justify a longer length.

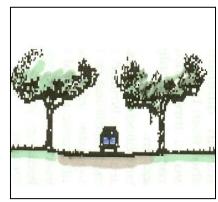


Fig. 9.X - Tertiary Street Elevation

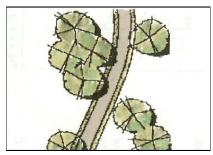


Fig. 9.X - Tertiary Street Plan

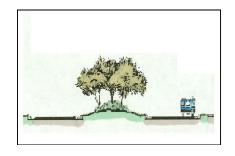


Fig. 9.X - Cul-de-sac Section - May Incorporate Plantings

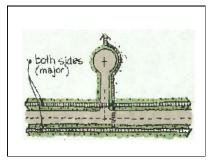


Fig. 9.X - Cul-de-sac Plan

- 9.3.1.5.4 Turnarounds must include a diameter to accommodate fire and garbage trucks.
- 9.3.1.5.5 Turnarounds can be either symmetrical or offset.
- 9.3.1.5.6 Turnarounds should have center planting islands to reduce the expanse of paved area.
- 9.3.1.5.7 Overflow parking can be provided on street in parking bays or within center of turnarounds.
- 9.3.1.5.8 Sidewalks, if any, are generally limited to one side of the road.
- 9.3.1.5.9 Street lighting, signing, and planting is character with the slow speed nature of traffic and the land use area being served.
- 9.3.1.6 Tactical vehicle trails provide alternative access for armored vehicles and other vehicles utilized in combat readiness training. They are recommended for installations with high use of armored vehicles to enhance the movement of the vehicles and reduce traffic congestion on the other installation roadways. These trails provide one lane access for vehicles between motor pools and maneuver areas. It is recommended that these trails be hard surfaced within developed areas with concrete of a thickness to withstand the weight of armored vehicles. The hard service will reduce dust pollution. These trails should be designed to provide as direct access as possible while minimizing crossings with primary, secondary, or tertiary roads. All crossings with the other roadway systems should be paved with concrete to support the weight of the vehicles and clearly marked with signage.

7.1 9.4 ROADWAY SETBACKS

Department of Defense Antiterrorism standards state that all inhabited buildings within a controlled perimeter will be setback a minimum of 10 meters (33 feet) from roadways, and that troop billeting and primary gathering spaces shall be setback a minimum of 25 meters (82 feet) from roadways. Inhabited buildings not within a controlled perimeter the minimum setback distance is 25 meters (82 feet) and for primary gathering places and troop facilities the minimum distance is 45 meters (148 feet). (See, Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, Table B-1).

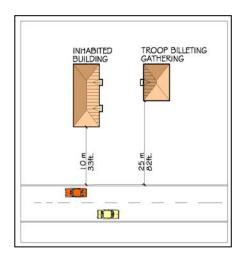
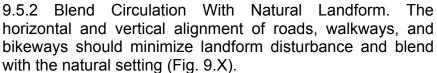
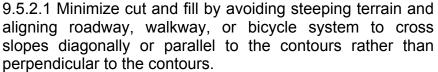


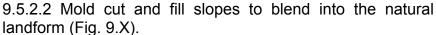
Fig. 9.X - Antiterrorism Roadway Setbacks Within a Controlled Parimeter

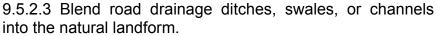
9.5 ROADWAY SYSTEM DESIGN

9.5.1 The location and design of new circulation system alignments as well as improvements to the existing system should be prepared to promote development sustainability. They should be designed to minimize impacts, relieve driver monotony, and provide a positive visual experience for the user, without compromising safety (Fig. 9.X). The following design techniques should be applied to circulation system design.









- 9.5.2.4 Use cluster development wherever possible to limit the lengths and required intersections of roadway and other circulation system elements and to preserve land. Consideration should be given to meeting antiterrorism requirements when developing cluster type facilities.
- 9.5.2.5 Minimize pedestrian, railroad, and bikeway crossings of highway, primary, and secondary roads.
- 9.5.2.6 Use natural topographic conditions to create grade separated pedestrian, railroad, and bikeway road crossings wherever possible especially on highways and primary roads.
- 9.5.3 Adapt Circulation to Preserve Vegetation. Design roads, walkways, and bike paths to minimize disturbance to existing vegetation, encourage re-vegetation in disturbed areas, and reduce the visual impact of landscape disturbance (Fig. 9.X).



Fig. 9.X - Positive Visual Image



Fig. 9.X – Build Circulation Into Natural Landform

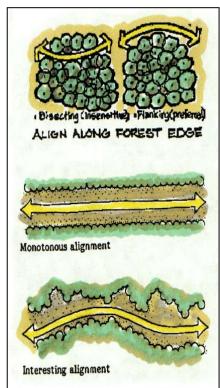


Fig. 9.X - Roadway Alignment

- 9.5.3.1 Align roads through open areas rather than forested areas.
- 9.5.3.2 Minimize cut and fill to reduce the limits of clearing.
- 9.5.3.3 Clear only for sight distances rather that uniform right-of-way clearing.
- 9.5.3.4 Utilize tree wells or retaining walls to preserve specimen trees or significant vegetation areas.
- 9.5.3.5 Provide optimum conditions for re-vegetation by following proper planting and maintenance techniques.
- 9.5.3.6 Restore vegetation to disturbed areas using naturalistic plantings of native plant material.
- 9.5.4 Minimize Adverse Impacts on Adjacent Land Uses.
- 9.5.4.1 Air Pollution. Locate roadway alignments to minimize the impact of traffic-emitted pollutants on adjacent development. This can be accomplished by the following:
- 9.5.4.1.1 Locate roads adjacent to land uses that are minimally affected by traffic-emitted air pollutants.
- 9.5.4.1.2 Reduce the impact of traffic-emitted pollutants on more sensitive land use areas by locating the roadways downwind and/or providing planted buffers. Tactical vehicle trails should be hard surfaced to reduce dust pollution.
- 9.5.4.2 Noise Pollution. Design and locate roadways to reduce the impact of traffic noise on adjacent development.
- 9.5.4.2.1 Roads should be physically separated from sensitive land uses including residential, medical, education, recreation, administration, religious, library, community or child care facilities.
- 9.5.4.2.2 Utilizing noise abatement techniques such as berms, sound barrier walls and plant material to reduce noise levels.
- 9.5.4.2.3 Reroute truck and tank traffic to roadways adjacent to less noise sensitive land uses. Tracked vehicle traffic should, ideally, be routed to a system of tank trails that are totally separate form corridors used by wheeled traffic vehicles.

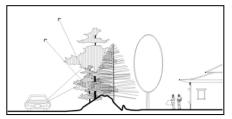


Fig. 9.X – Landscape and Berms Buffer Air and Noise Pollution

9.6 INTERSECTIONS

- 9.6.1 Intersections are the most dangerous areas of the installation circulation system. They should be planned or improved to provide safe and efficient traffic flow for both pedestrian and vehicular traffic. The following design techniques should be used to plan or improve intersections (Fig. 9.X):
- 9.6.1.1 All roadways should intersect at right angles (90 degrees), although 85-95 degrees is acceptable.
- 9.6.1.2 Avoid dangerous, complex intersections of more than two streets intersecting at one point or offset intersections.
- 9.6.1.3 Eliminate intersections that are in close proximity to one another. They should be no closer than a minimum distance of 30 meters (100 feet).
- 9.6.1.4 Use T-intersections for tertiary road intersections with secondary or primary roads to reduce conflict and promote safety.
- 9.6.1.5 Provide turning lanes at all intersections along primary roads to eliminate interference with through traffic flow.
- 9.6.1.6 Minimize intersections along primary roads to reduce points of conflict and increase safety. Existing intersections with secondary and tertiary streets can be eliminated by the use of cul-de-sacs with traffic routed along parallel streets to primary and secondary streets.
- 9.6.1.7 Include adequate sight distances to meet minimum standard requirements at all intersections. The location from where the driver is waiting to cross or enter a traffic lane to a point 23 meters (75 feet) down the centerline to the right and the left forms the sight triangle.
- 9.6.1.8 Minimize pedestrian and bicycle intersections with primary streets.

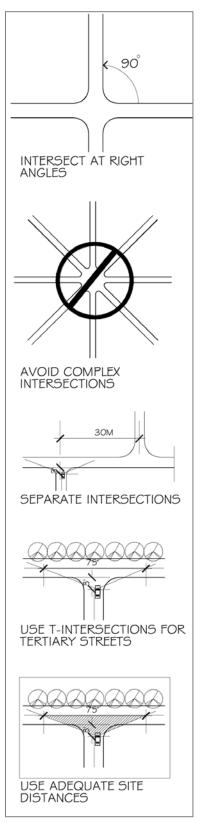


Fig. 9.X - Intersection Design

- 9.6.1.9 Provide crosswalks at all intersections where necessary, marked with paint or vinyl strips or identified with a different paving surface.
- 9.6.1.10 Provide pedestrian access to persons with disabilities in accordance with the <u>Americans with Disabilities Act Accessibility Guidelines (ADAAG)</u> and the <u>Uniform Federal Accessibility Standards (UFAS)</u>. In the event of a conflict the most stringent standards will be applied.
- 9.6.1.11 Create local service drives or access roads to parallel highways and primary roads to provide access to properties fronting the primary road avoiding a direct curb cut form the primary road to each individual property.
- 9.6.1.12 Intersections between railroad track and high-speed roads must be signaled, well marked and have a smooth transition. All other road crossings must be well marked and have clear line of sight down the tracks.

2.5 m 2.5 m min. 1.5 m min.

Fig. 9.X - Accessible Parking Space

9.7 ENTRANCE GATES

9.7.1 The location and design of the installation entrance gates is a primary component of the installation circulation system. Entrance gates must be designed to be functional, while providing security protection not only for the installation itself, but also for personnel and others waiting to be admitted to the installation. Gates should also be designed as a visual amenity to provide an aesthetically pleasing entrance to and exit from the installation. See Section 12, Force Protection, para 12.7 for information on the design standards for installation gates.

Total spaces in parking area	Required minimum number of accessible spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2% of total
1001 and up	20 plus 1 for each 100 over 1000

Fig. 9.X - Required Minimum Number of Accessible Parking Spaces

9.8 PARKING REQUIREMENTS

- 9.8.1 The total quantity of parking in any one location will vary with the needs of the facility. The following are general considerations considering parking requirements.
- 9.8.1.1 All parking lots will be accessible to persons with disabilities in accordance with the requirements of the <u>UFAS</u>, <u>paragraph 4.1.1(5)(a)</u> (Fig. 9.X). If parking spaces are provided for employees or visitors, or both, then accessible spaces shall be provided in conformance with the required minimum number of accessible spaces shown in Figure 9.X.

- 9.8.1.2 For initial planning and programming, allocate 400 square feet of parking lot area per car. The total provides adequate minimum space for the parking spaces, access drives, and planting islands that make up a parking lot. This allocation is not withstanding tactical military vehicles.
- 9.8.1.3 Minimize parking space requirements of a facility by selecting a site that will allow the sharing of parking with related activities.
- 9.8.1.4 Small parking lots are usually preferable to large lots because they enhance the visual environment by increasing the percent of landscaped area to paved area and allow more conformance to natural topography.
- 9.8.1.5 The monotony of large parking areas can be altered by the use of designs such as curvilinear parking or the introduction of large planting islands.
- 9.8.1.6 Promote means of access other than vehicular by providing alternative means of access such as walkways and bikeways.

7.2 9.9 PARKING LOT LOCATION AND DESIGN

- 9.9.1 Parking areas can be designed and enhanced to provide a more pleasing impact and a more comfortable physical experience for the user. The following design techniques should be used to create more aesthetically pleasing, physically comfortable parking lots.
- 9.9.1.1 Locate parking lots between and behind buildings to reduce the visual impact from the circulation system.
- 9.9.1.2 Locate parking lots on relatively level areas to avoid excessive cut and fill.
- 9.9.1.3 Design parking lots to be efficient in the design and placement of access drives and parking spaces. All drives providing direct access to parking spaces should provide spaces on both sides of the drive.
- 9.9.1.4 Provide planting areas at the ends of all rows of parking spaces. Provide islands with trees within the main parking lot to soften the visual expanse of the parking lot, provide shade and/or wind breaks (Fig. 9.X).

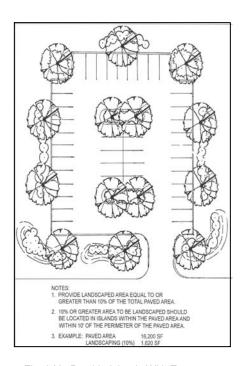


Fig. 9.X - Provide Islands With Trees to Soften Visual Expanse

9.9.1.5 Use natural topography and existing trees to visually screen parking areas from adjacent facilities and other parking bays (Figs. 9.X).

9.9.1.6 Design parking lots to preserve significant existing trees. Provide a planting area around the tree that is large enough to allow water to the root system.

9.9.1.7 On street parking along primary and some secondary streets should be avoided because it reduces the vehicular carrying capacity of the street, is visually unattractive, and is unsafe.

9.9.1.8 Parking lots should be paved with concrete, asphalt, or other paving material.

9.9.1.9 Parking structures, both below grade and above grade, provide for greater parking capacity in densely developed areas where available land is scarce. Parking structures are expensive, but they provide a number of benefits including efficient land use, reduced visual impact and protection of vehicles from inclement weather (Fig. 9.X). If parking structures are built they shall be designed to meet antiterrorism requirements.

9.9.2 Parking Area Design Guide. A comprehensive parking area design guide which includes siting, parking area types, geometry (parallel, perpendicular, angled), access, and maintenance consideration is located at the following website: <u>U. S. Air Force Landscape Design Guide, Section 14, Parking Areas</u>.

9.9.3 Antiterrorism Setback Requirements.

Parking lots within a controlled perimeter shall be located a minimum of 10 meters (33 feet) from inhabited structures, and 25 meters (82 feet) from troop billeting and primary gathering structures. Parking lots without a controlled perimeter shall be located a minimum of 25 meters (82 feet) form inhabited structures, and 45 meters (148 feet) from troop billeting and primary gathering areas (UFC 4-010-01, Table B-1). Designated parking for family housing located within secured perimeters with access control is excluded from the 25-meter (82 feet) setback requirement.

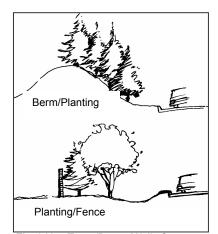


Fig. 9.X. – Trees/Berms/Walls Screen Parking Lot

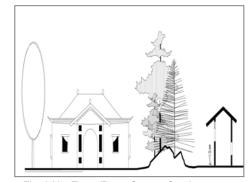


Fig. 9.X – Trees/Berm Screen Service Area

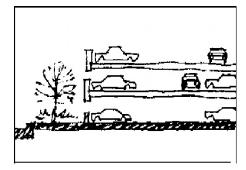


Fig. 9.X - Parking Structures are Desirable but Expensive - Consider Antiterrorism Standards in Planning

9.10 SERVICE AREAS

Facilities that require pickup and deliveries should have a service area that allows for easy access to a loading dock exclusively for service vehicles. These areas should be designed to provide direct, easy access for vehicles and not conflict with railroad operations (Fig. 9.X). They should be screened from public view to reduce negative visual impacts. Service areas shall meet all antiterrorism requirements.

9.11 DROP-OFF AREAS

Facilities that include a high percentage of persons arriving by vehicle should include a vehicle drop-off area for users. Included are buildings such as headquarters, child development centers, schools, dining facilities, and clubs. Antiterrorism standards state that the access drive must be clearly defined and marked and that their intended use is clear to prevent parking of vehicles in those areas and that drop-off lanes will not be located under any inhabited portion of a building (UCF 4-010-01, para B-1.4) It is recommended that physical barriers be used to define the area. These barriers may include curbing, planters, or other barriers together with signage to identify and restrict access. The driveway shall be configured so that vehicles can be restricted during times of high alert. Access to the driveway shall be located outside the standoff area with the initial approach parallel to the building, or a barrier must be directed to prevent direct vehicular movement toward the building (Fig. 9.X).

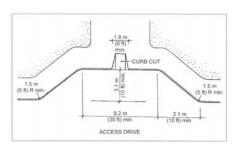


Fig. 9.X - Typical Drop Off Area

9.12 WALKWAYS AND PEDESTRIAN CIRCULATION

9.12.1 Walkways provide connections for pedestrians between buildings and ancillary facilities such as parking lots and other areas. Well designed and located pedestrian walkways also provide a desirable alternative to total dependence on motor driven vehicles (Fig. 9.X).

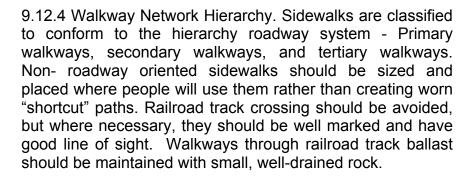
9.12.2 The goal is to encourage the use of walkways as an alternative means of circulation. Pedestrian walkways should be designed and located to provide a comfortable, enjoyable experience for the user. The use of walkways within the installation promotes development sustainability by conserving energy, reducing air pollution, and decreasing



Fig. 9.X - Promote Means of Access Other Than Vehicular, Provide Walkways and Bikeways

the land requirement for parking. These walkways as well provide a means to increase physical fitness.

- 9.12.3 In order to achieve this goal the following objectives must be met:
 - Provide walkways that are designed at a pedestrian scale to be comfortable and pleasant.
 - Provide safe and secure pedestrian facilities that are separate from vehicular and railroad traffic.
 - Provide amenities for pedestrians.
 - Provide accessibility to all users, including physically impaired or challenged persons. All street and driveway crossings shall be ramped, marked, and accessible to persons with disabilities in accordance with requirements of the UFAS. See the following UFAS paragraphs for the respective standards: <u>Curb Ramps</u>, <u>paragraph 4.7</u>; <u>Ramps</u>, <u>paragraph 4.8</u>; <u>Stairs</u>, <u>paragraph 4.9</u>.
 - Provide links to major attractions and generators of pedestrian traffic.
 - Provide design consistency throughout the walkway and be well drained.



9.12.4.1 Primary Walkways.

9.12.4.1.1 Primary walkways (Fig. 9.X) should be placed along both sides of primary roadways, wherever possible, within the cantonment areas. These walkways are also used

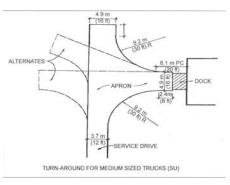


Fig. 9.X - Typical Loading Area

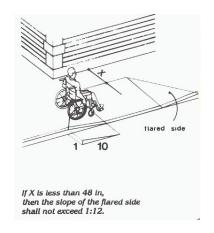


Fig. 9.X - Ramps Must Be Provide Per UFAS Standards

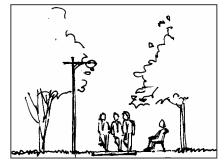


Fig. 9.X – Primary Walkways

for high volume pedestrian routes to facilities and should be designed along axis lines relating to adjacent building entries, plazas, or streets. They should be paved with concrete, brick, or other pavers.

9.12.4.1.2 Primary walkways should be sized to accommodate anticipated pedestrian use. They should have a minimum width of 1.8 meters (6 feet), and a maximum width should be 3-3.5 meters (10-12 feet) in high use areas (Fig. 9.X).

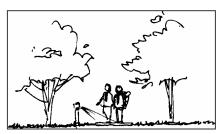


Fig. 9.X - Secondary Walkways

9.12.4.2 Secondary Walkways.

9.12.4.2.1 Secondary walkways (Fig. 9.X) should be provided along one or both sides of secondary and tertiary streets. They are designed to carry moderate volumes of pedestrians between activity centers and housing areas. They should provide access to building entrances, plaza areas, or streets. They should be paved with concrete, brick, or other pavers.

9.12.4.2.2 These walkways should be sized to accommodate anticipated pedestrian use, but not less than 1.2 meters (4 feet), and a maximum of 3-3.5 meters (10 - 12 feet) in high use areas.

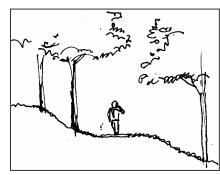


Fig. 9.XX - Tertiary Walkways

9.12.4.3 Tertiary Walkways.

9.12.4.3.1 Tertiary walkways (Fig. 9.X) provide pedestrian walkways in recreational and scenic areas for casual walking and hiking. They can be paved with concrete or bituminous asphalt or constructed with woodchips. The layout of the walkway should have a meandering and curvilinear alignment. Paved walkways should have a minimum width of 1.2 meters (4 feet). Wood chip trails should have a minimum width of 1 meter (3 feet) (Fig. 9.X). Where paths are designated for use by bicyclists and pedestrians, these widths should be increased an additional three feet for each bike lane.

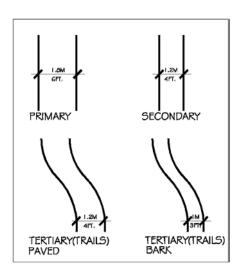


Fig. 9.X - Minimum Walkway Widths

9.12.5 Troop Running Trails.

Troop running trails should be provided for soldiers both in and out of formation. The width should 4.5-5 meters (approximately 15 feet) to provide the width necessary for four soldiers abreast with a cadence caller. Primary,

secondary, and tertiary walkways can be designed to provide this function.

9.12.5 Troop Movement Paths.

In locations where troops need to move four (4) abreast; for example, troops marching in formation between classrooms, barracks/dinning hall facilities, an hard surface walkway of adequate width should be provided.

9.12.5 Site Amenities at Walkways.

- 9.12.5.1 Utilize site furnishings to reinforce the walkway system hierarchy. Provide directional and informational signage, where appropriate. Locate site furnishings, such as benches, tables, waste receptacles, drinking fountains, and signage in response to travel distance and traffic volume.
- 9.12.5.2 Site furnishings should be placed at regular intervals along walkways, parallel to the walk and facing the flow of pedestrian traffic.

9.12.7 Landscaping at Walkways.

Use a combination of canopy and ornamental trees along sidewalks to provide shade, define the path, provide visual interest, and discourage the creation of "shortcuts." Utilize evergreen buffer plantings to screen harsh winds and undesirable views. Discourage the use of flowering/fruit bearing trees and shrubs along walkways because of threat of insects or other problems.

Fig. 9.XX – Place Landscape and Site Furnishings Along Walkways

9.13 BIKEWAYS

- 9.13.1 The use of bicycles as alternatives to the automobile has become more acceptable to installation personnel This trend is encouraged as a method of reducing the automobile vehicle trips within the installation and reduce the need for greater carrying capacity. Also, cycling is a popular recreation activity that is enhanced by the availability of a safe and well planned system of bike trails.
- 9.13.2 A bikeway system should provide direct routes between primary traffic and destination within the installation. This network should be continuous and minimize conflicts between bikes, pedestrians, and vehicles. Bikeways should be planned and designed according to the classifications

that define the level of separation they maintain from roadways and walkways. The ideal solution for the development of bikeways is to physically separate them from both roadways and walkways.

9.13.3 Bikeways are design according to the following classifications:

9.13.3.1 Class I Bikeway. A Class I Bikeway is intended for

the exclusive use of bicycles. While it may parallel a roadway, it is physically separated by distance or a vertical barrier (Fig. (.X). Class I Bikeway considerations include:

- A class I Bikeway provides the safest and most efficient means of bicycle travel and is the preferred option for bikeway development.
- Crossing of a Class I Bikeway by pedestrians, train, or automobile should be minimized.
- If a Class I Bikeway does not closely parallel a roadway, it should be designed to provide appropriate bikeway gradient and curvature.
- Class I Bikeways require the greatest amount of space and advance planning to reserve land and assure appropriate routing.
- Railroad crossings should be well marked, with proper operating signals and clear

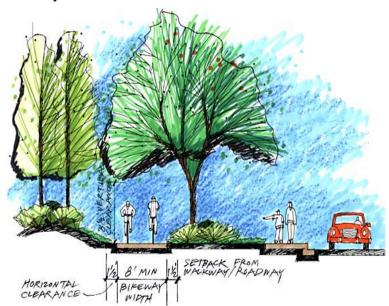


Fig. 9.X - Class I Bikeway

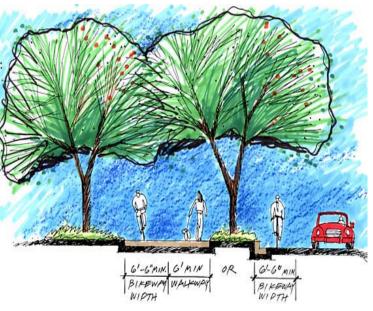


Fig. 9.X - Class II Bikeway

sighting down the tracks. Road crossing transitions should be smooth and well drained.

9.13.3.2 Class II Bikeways. A Class II Bikeway shares the right-of-way with a roadway or walkway. It is indicated by a bikeway pictograph on the pavement and a continuous strip on the pavement or separated by a continuous or intermittent curb or other low barrier (Fig. 9.X). Class II Bikeway considerations include:

- Because some separation is provided for bicycle travel, a Class II Bikeway provides some level of safety for the bicyclist and pedestrian.
- While crossing by pedestrians or automobiles are discouraged, they are not as controllable as they are on a Class I Bikeway because the Class II Bikeway is adjacent to the walkway or roadway.
- Because Class II Bikeways are tied to the adjacent roadway or walkway, route selection is important to maintain appropriate bikeway gradient and curvature.
- Class Ш Bikeways generally require less space than Class I Bikeways because they follow the alignment of and share the right-of-way with a roadway or walkway.

9.13.3.3 Class III Bikeways. A Class III Bikeway shares the right-of-way with a roadway or walkway. It is not indicated by a continuous strip on the pavement or separated by any type of barrier, but it is identified as a bikeway with signs (Fig. 9.X). Class III Bikeway considerations include:



Fig. 9.X - Class III Bikeway

- Because no separated is provided, there is a higher potential for safety conflicts between automobiles and bicycles and between bicycles and pedestrians.
- Class III Bikeways provide continuity within the bikeway network and designate preferred shared routes to minimize potential conflicts. To maintain safety for bicyclist and pedestrians, Class III Bikeways should be developed, if possible, only where automobile and pedestrian traffic is moderate to light.
- Because Class III Bikeways share the roadway or walkway, route selection is important to maintain appropriate bikeway gradients and curvature.
- Class III Bikeways require the least space because they share the pavement with a roadway or walkway.

9.13.4 General Guidelines.

- 9.13.4.1 Wherever possible, provide a designated right-ofway for bike traffic, separate from vehicular and pedestrian routes.
- 9.13.4.2 Locate bikeway crossings away from vehicular intersections with crossings marked on the street pavement.
- 9.13.4.3 When separate bicycle right-of-ways are not feasible, designate bikeway lanes with paint on the right-hand side of roadways.
- 9.13.4.4 Bikeways should never share undesignated space with roadways except at crossings.
- 9.13.5 Bikeway Furnishings. Encourage use of the bicycle system by making trails visually attractive and providing pedestrian amenities in appropriate locations. Provide site furnishings such as benches, tables, waste receptacles, drinking fountains, and signage along paths. Location of these amenities should be in response to travel distance and traffic volume.

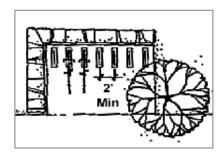
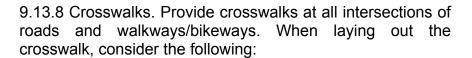


Fig. 9.X – Provide Convenient Bicycle Storage

9.13.6 Bicycle Storage. Provide bicycle storage racks in areas that can be visually supervised and in close proximity to building entrances, high activity areas, major workplaces, and recreational facilities, while avoiding conflicts with pedestrian circulation (Fig 9.X). Bicycle storage areas should be covered, especially at barracks, and easily accessible to building entrances (Fig. 9.X).

9.13.7 Landscaping. Use a combination of canopy and ornamental trees along bicycle paths for shade, route definition, and visual interest. Provide evergreen buffers to screen harsh winds and undesirable views.



- Extend walk's paving across the road in heavily used areas. Raised crosswalks eliminate the need for curb ramps in sidewalks.
- Provide a clear line of sight for motorist and pedestrians. Do not plant in sight lines.
 Walkways should meet the road at 90 degree angles (Fig 9.X).
- Adequate light should be provided.
- Provide barrier-free access at all intersections or used raised crosswalks.

9.13.9 Walkway and Bikeway Lighting Design. Roadway lights and building exterior lights can serve also as walkway and bikeway lights. Maximum use will be made of multipurpose lighting systems. Paragraph 10.4 of Technical Manual (TM) 5-811-1, Electric Power Supply and Distribution directs the following walkway and bikeway lighting standards.

9.13.9.1 Intensities. Values are dependent upon whether walkways and bikeways are adjacent to roadways or are isolated from vehicular traffic.



Fig. 9.X - Bicycle Storage Should Be Covered

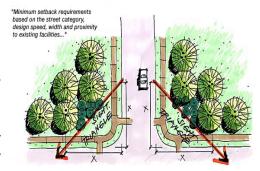


Fig.9.X - Adequate Sight Lines Give Pedestrians an Unobstructed View of Crosswalks

- 9.13.9.1.1 Adjacent to Roadways. Walkways and bikeways will be illuminated to not less than one-half the maintained illumination required for adjacent roadways. Areas having in grade, such as stairs and ramps, will require special treatment. Crosswalks in the middle of the block will be illuminated to 1.5 to 2 times the normal roadway lighting level.
- 9.13.9.1.2 Remote from Roadways. Walkways and bikeways remote form roadways will have a minimum of 5 lux ().5 footcandle) average illumination measured in lo-foot levels. Pedestrian tunnels will have 40 lux (4.0 footcandles), stairways will have 6 lux (0.6 footcandles), and overpasses will have 3 lux (0.3 footcandles) illumination.
- 9.13.9.2 Pole design. Where pole mounted light illuminate only walkways or bikeways, shorter poles are most suitable, but luminaire height will not be less than 10 feet. Construction will be such as to minimize vandalism by use of break-resistant lenses, tamperproof screws, and sturdy poles.
- 9.13.10 Signs. The federal Manual of Uniform Traffic Control Devices (MUTCD) provides standards signs and markings for bicycle lanes and related bicycle facilities. See the MUTCD, Chapter 9 and any applicable amendments for traffic controls for bicycle facilities standards.

9.14 ARMY STANDARDS

- 9.14.1 The cited Army Standards shall be met.
 - Army Regulation (AR) 420-72, Transportation Infrastructure and Dams
 - Technical Instructions (TI) 804-11, Design for Non-Organizational or Privately Owned Vehicle (POV) Site Circulation and Parking
 - <u>Technical Manual (TM) 5-811-1/Air Force</u>
 <u>AFJMAN 32-1080, Electric Power Supply and Distribution</u>

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- <u>Technical Manual (TM) 5-822-2, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas</u>
- <u>Technical Manual (TM) 5-850-2/Air Force</u>
 <u>AFJMAN 32-1046, Railroad Design and Rehabilitation</u>
- Manual For Railway Engineering
- <u>Unified Facilities Criteria (UFC) 4-010-01, DoD</u>
 <u>Minimum Antiterrorism Standards for Buildings</u>
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)
- Manual of Uniform Traffic Control Devices (MUTCD)

9.15 REFERENCES

- 9.15.1 The following references are provide for guidance.
 - Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap 9
 - <u>U.S. Air Force, Landscape Design Guide,</u>
 Parking Area
 - U.S. Air Force, Landscape Design Guide, <u>Walkways</u> and <u>Bikeways</u> (Provides a comprehensive walkways and bikeways planning guide including sections on paving materials and gradients and curvature data.)
 - <u>Chicago's Bike Lane Design Manual</u> (Provides a comprehensive series of technical drawings and design specifications for bike lanes.)

Links

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Section 10 LANDSCAPE DESIGN STANDARDS

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

10.1 INTRODUCTION

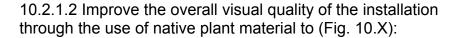
- 10.1.1 The Landscape Design Standards includes the selection, placement and maintenance of plant material on the installation. Landscape plantings provide a simple and cost effective enhancement to the general appearance of the installation.
- 10.1.3 The visual image conveyed by a military installation is defined not just by architectural character and site organization, but also by an attractive, organized landscape design. The presence of plant material on the installation greatly enhances the visual character and environmental quality of the installation.
- 10.1.2 Plantings add an element of human scale to open spaces and can be used functionally to screen undesirable views, buffer winds, reinforce the hierarchy of the circulation

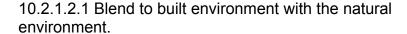
Installations: Insert pictures with captions as appropriate - Fig. 10.1 - etc.

system or provide a visual transition between dissimilar land uses.

10.2 LANDSCAPE OBJECTIVES

- 10.2.1 The overall objective of the use of plant material within the installation is to improve the physical and psychological well being of the people who live and work on the installation. This is achieved through the following objectives:
- 10.2.1.1 Preserve and enhance urban trees, forest lands, and detailed planting features such as shrubs and groundcovers.





- 10.2.1.2.2 Provide scale and comfort to pedestrian environments (Fig. 10.X).
- 10.2.1.2.3 Reinforce the hierarchy of the circulation system.
- 10.2.1.2.4 Screen unsightly views or elements.
- 10.2.1.2.5 Buffer incompatible land uses.
- 10.2.1.2.6 Minimize maintenance through the use of native plant materials that require less maintenance to survive.
- 10.2.1.2.7 Enhance Antiterrorism capabilities.

10.3 PRINCIPLES OF LANDSCAPE DEVELOPMENT

- 10.3.1 Landscape design is based on the following principles (Fig. 10.X).
- 10.3.1.1 Unity. The selection and placement of plant material can be used to blend, screen, and soften incompatible architectural or other unattractive visual impacts. Plant



Fig. 10. X - Use native Plants to Improve Visual Quality



Fig. 10.X - Provide Comfort to Pedestrian Environment



Fig. 10.X - Landscaping Reinforces Circulation Hierarchy

material as a unifying element can be placed in front of a building or view to frame and enhance the visual impact.

- 10.3.1.2 Balance. Plant material can be selected and placed to provide visual equilibrium or balance through the use of either a symmetrical or asymmetrical planting scheme. Symmetrical plantings are generally more formal while asymmetrical plantings are informal.
- 10.3.1.3 Contrast. Plant material can be selected and placed to provide differences in size and shape that add interest to the environment. Plants can be located to provide a backdrop for other plants such as a hedge behind a bed of annuals or perennials.
- 10.3.1.4 Rhythm. Repetition of a single plant or a mass of plants provides visual interest and formality to the landscape. Rhythm produces emphasis and unity and is especially effective in articulating main circulation routes.
- 10.3.1.5 Color and Texture. Plants can be selected and placed to provide visual interest according to their color and texture. Colors are classified as either warm (red, orange, yellow) or cool (violet, blue, green). Texture is classified as either coarse of fine.
- 10.3.1.6 Simplicity. Landscape plans should be broad and simple in form to limit excessive maintenance. Plant material should grouped in beds with simple edges that are easy to mow. Small turf areas should be avoided because of the difficulty of mowing. The use of annuals should be minimal because of the high maintenance involved.
- 10.3.1.7 Ultimate Effect. The landscape plan should be prepared with consideration for the mature size of all plants. The spacing of all material should utilize nursery industrial standards for mature material to account for spread as well as height. The ultimate height of the material should also be considered in relation to windows and other visual concerns.
- 10.3.1.8 Spatial Articulation. Plants can be selected and placed to create enclosed spaces or to separate spaces from one another. They can also be used to direct people by visually defining and reinforcing patterns of movement. The

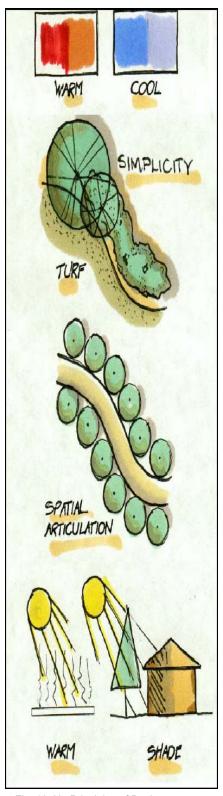


Fig. 10. X - Principles of Design Illustrated

degree of enclosure, separation, or movement is dependent upon the density, form, and type of plants used.

- 10.4 Sustainable landscape development
- 10.4.1 The use of plant material on the installation promotes the sustainability of the development. Trees, shrubs, groundcover, and vines provide aesthetic appeal as well as preservation of fauna and flora, energy conservation, climate modification, erosion control, air purification, and noise abatement (10.X).

10.5 LANDSCAPE DESIGN GUIDELINES

10.5.1 Proposed plantings must be reviewed to ensure that site conditions (soil, topography, adjacent uses, and architecture) and climatic criteria (sun, shade, and moisture requirements) are considered in the desired plant design and selection (i.e., form, texture, color, size). The uses and users of the site must also be considered. Landscape planting plans should be approved by qualified personnel to provide quality assurance and promote design consistency within each visual zone.

10.5.2 The following paragraphs present landscaping guidelines for the various locations of plant material use.

- 10.5.2.1 **Foundation Planting**. Foundation planting provides a green background for additional plantings, adds scale and character to the building, helps to integrate the building with its surroundings, screens HVAC and other utilities and helps create a sense of arrival (Fig.10.X). When developing foundation planting plans consideration should be given Antiterrorism measures (See paragraph 10.11).
- 10.5.2.1.1 Focal and seasonal plantings should be located at building entries for pedestrian interest.
- 10.5.2.1.2 Use the architecture of the building to evaluate the planting design and selection of plants.
- 10.5.2.1.3 Plant materials should not block windows and views from interior spaces.

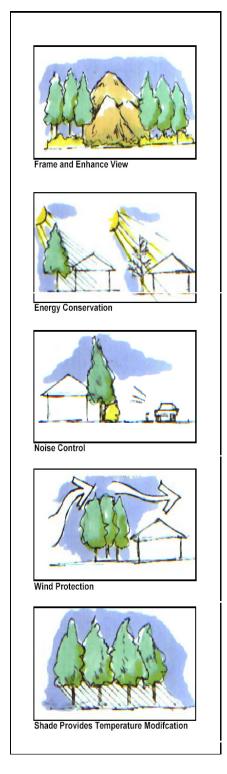


Fig. 10.X Plant Material Promotes Sustainability

- 10.5.2.1.4 Trees shall be setback from the building walls to provide space for mature growth and to prevent root systems from damaging the foundation.
- 10.5.2.1.5 A symmetrical foundation planting design should be used for a symmetrical building.
- 10.5.2.1.6 Due to the possibility of insect problems (bee stings, etc.) do not plant flowering plants near entrances.

10.5.2.2 Screening.

- 10.5.2.2.1 Windscreens. Use a combination of evergreen and deciduous trees to provide windbreak protection from prevailing winds. Windbreak plantings should be irregular in form, rather than straight and evenly spaced, in order to provide more effective wind control and to visually blend with the natural character of the installation.
- 10.5.2.2.2 Screening of Dumpsters. Landscape planting should be used to supplement wood fence and masonry wall dumpster enclosures (Fig. 10.X).
- 10.5.2.3 **Buffer Planting**. Use a mixture of evergreen and deciduous trees and shrubs to visually separate land uses and to help separate visual zones.
- 10.5.2.4 **Open Space Planting.** Enhance open space areas with planting. Use a mix of evergreen, deciduous, and flowering trees. Plant the same kind of trees in massive groupings to impact the vast open areas (Fig. 10.X).
- 10.5.2.5 **Street Trees**. Street tree plantings should be used to reinforce vehicular hierarchy, orient and direct traffic, upgrade views and to visually de-emphasize on-street parking (Fig. 10.X). Also, in the design of a street tree planting, separate plant species may be used to identify distinctive details or areas of the installation, for example, a particular land use relationship, historical district, community area or other similar entity.
- 10.5.2.5.1 Use formal street trees in single rows to visually reinforce primary and secondary roads. Use regularly



Fig. 10.X - Foundation Plantings Help Screen Utilities

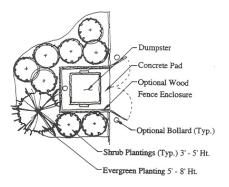


Fig. 10.X - Screen Dumpsters



Fig. 10.X - Enhance Open Spaces with Plantings

spaced and uniformly shaped deciduous trees to provide a regimented appearance.

10.5.2.5.2 Use informal groupings of street trees along tertiary routes. Utilize medium size deciduous trees to screen on-street parking along roadways. Set trees 1 to 2 meters (3 to 6 feet) from the back of curbs (Fig. 10.X). Spacing should be uniform, except where curb cuts interrupt regular spacing.

10.5.2.5.3 As a general rule, street trees should be deciduous species, resistant to salt and root pressure, and should have a 10' to 12' high clearance between the street pavement and branch height to allow adequate clearance for pedestrian and vehicle traffic to pass unimpeded by lower branches.

10.5.2.5.4 The street tree layout should be coordinated with the layout of proposed street lighting.

10.5.2.5.5 Appropriate plant heights should be used within sight triangles to ensure safe views from intersections.

10.5.2.5.6 Weeping trees should not be used in locations where them may hang over the roadway or block views.

10.5.2.6 **Parking Lot Planting**. Parking lots are often the least attractive elements on a military installation. The use of landscape plant material and earth berms can greatly improve the appearance of these areas as well as help define circulation and reduce heat gain during summer months (Fig. 10.X).

10.5.2.6.1 Use shade tree plantings at parking lots to reduce glare and moderate ambient air temperatures on the lot. Optimum spacing of parking lot shade trees is 10 to 12 meters (35 to 40 feet) on center.

10.5.2.6.2 Choose trees and shrubs that require minimum maintenance and will not litter the parking area with leaves, fruit, or nuts.

10.5.2.6.3 Consider sight distances near entrances and exits when selecting and placing plant material.

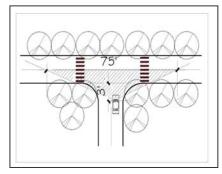


Fig. 10.X - Use Street Trees to Visually Reinforce Roadway Hierarchy

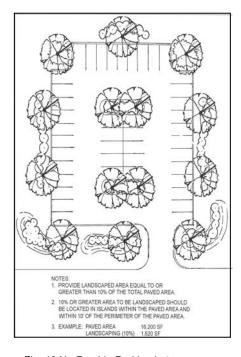


Fig. 10.X - Provide Parking Lot Planting to Reduce Heat Gain

- 10.5.2.6.4 Select trees, shrubs, and ground covers that can withstand harsher conditions, such as sun, glare, heat, and reduced water supply.
- 10.5.5.6.5 Use a mix of evergreen and deciduous plant material to screen parking areas from adjacent uses.
- 10.5.2.7 **Environmental Control Planting**. When properly placed, plants can provide environmental benefits, as well as address visual concerns.
- 10.5.2.7.1 Use deciduous trees and shrubs at courtyards, buildings and along streets to provide shade, moderate temperatures and reduce glare during the summer months while allowing solar exposure in the winter.
- 10.5.2.7.2 Locate deciduous plantings on the southeast and southwest corner of buildings or courtyards to mitigate solar radiation and glare due to heat build-up and lower sun angles in the mid-morning and late afternoon hours.
- 10.5.2.7.3 Use mixed massings of deciduous shrubs and evergreen trees and shrubs to provide sound control along primary and secondary roads.
- 10.5.2.8 **Image Planting**. The image of the installation is formed by the visual impressions that exist within the installation. The primary locations of highly visible images are the main gate, along primary circulation systems, and at areas of high concentrations of people. Features such as signs, statues, static displays, and other primary visual images can be improved by the use of trees, shrubs, and ground cover.
- 10.5.2.9 **Entrances to the Installation**. The entrances and streetscapes into the installation are areas to place landscaping that will develop a strong visual image and provide visual interest during all four seasons. The entrance to the installation creates the first visual impression for the visitor (Fig. 10.X).
- 10.5.2.9.1 The landscape materials and planting areas should be proportional in scale to the hierarchy of the street on which they are located.

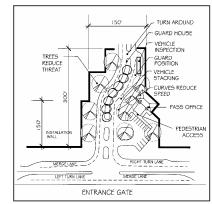


Fig. 10.X - Landscaping at Entrance Gates will Meet AT/FP Requirements

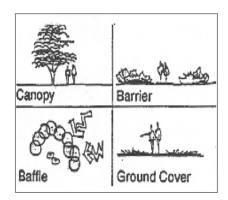


Fig. 10.X Basic Design Categories

10.5.2.9.2 Landscaping must be integrated with the Force Protection requirements of Section 12. Low shrubs, groundcover, annual/perennial plants and canopy trees provide seasonal interest as well as maintain views required to ensure force protection measures. Large evergreen trees are discouraged in these locations because they may obstruct sightlines and impact the need for force protection. Adequate lines of sight must be maintained fro guard personnel to observe vehicular and pedestrian traffic approaching the gate.

10.5.2.10 **Zeroscaping**. Where appropriate, to conserve water and lower maintenance consider zeroscaping.

10.5.2.11 **Xeriscape**. Xeriscape is the conservation of water and energy through creative and adaptive landscape design. Xeriscape landscapes provide attractive solutions that save money, water, and maintenance. The following website provides guidance on specific design principles of the xeriscape design process and xeriscape design application:

• <u>USAF Landscape Design Guide, Xeriscape</u>

10.6 PLANT MATERIAL SELECTION

10.6.1 Trees, shrubs, ground cover and turf are the major elements of a planting composition. Basic plant selection criteria should consider creating a unified composition utilizing native materials for low maintenance and sustainability, avoiding incompatible colors, textures and forms, and matching the appropriate plant to the land use, situation and environmental condition.

10.6.2 The ability of plant material to provide lasting benefit is dependent upon the plant's hardiness and its appropriateness to the site use. Major factors affecting plant hardiness are soil type and organic content, temperature, moisture and light. These climatic conditions can be modified to an extent by specific site conditions, such as wind protection, solar orientation and planting design, to create microclimates.

Plant Categories

Cultural Characteristics

Growth Rate-Rapid

Growth Rate-Medium

Growth Rate-Slow

Disease/Pest Resistance

<u>Environmental</u> Characteristics

Acidic Soil Tolerant

Alkaline Soil Tolerant

Dry Soil Tolerant

Moist Soil Tolerant

Poor/Rocky Soil Tolerant

Salt Tolerant

Shade Tolerant

Summer Wind Tolerant

Urban Condition Tolerant

Ornamental Characteristics

Blue Flowers

Ornamental Bark

Fig. 10.X - Plant Categories

10.6.3 Selecting appropriate plants for a given condition is only one aspect of planting design. Compositional arrangement to provide texture variety and to accent site and building features is another. The selection and composition of a planting design requires an understanding of each plant's characteristics, form, and environmental needs as well as how each plant can relate to and complement other plants in the design. Plants are used in four basic design categories (Fig 10.X):

- Canopy
- Barrier
- Screen (or Baffle)
- Groundcover

10.7 PLANT PALETTE AND PLANT CATEGORIES

10.7.1 The plant palette and categories are designed to help the designer choose the best plant for each particular set of design requirements. The plants that appear on the palette and in the categories were selected for their hardiness and their ability to survive in this geographical area. To use them effectively, the design requirements must be well defined for the specific site.

Installation: Complete <u>Appendix O</u>, Plant Palette using selected plants form your geographical area and complete the plant categories files with the respective information for each plant section (See the CATEGORIES.XLS file).

10.7.2 The Plant Palette.

10.7.2.1 A select group of plant materials has been divided into the following six categories:

- deciduous trees
- coniferous trees
- deciduous shrubs
- coniferous shrubs

Plant Categories Cont.

Ornamental Characteristics

Pink/Purple Flowers

Red/Crimson Flowers

White/Cream Flowers

Yellow/Orange Flowers

Yellow/Orange/Red Fall Color

Functional Characteristics

<u>Erosion Control/Bank</u> Stabilizer

Foundation Plants

Large Hedges (+25')

Medium Hedges (10-20')

Low Hedges (4-10')

Naturalizing/Conservation

Park Trees

Large Street Trees (+35')

Small Trees (15-35')

Thorny Plants

Fig. 10.X - Plant Categories

- broadleaf evergreen shrubs
- groundcover and vines

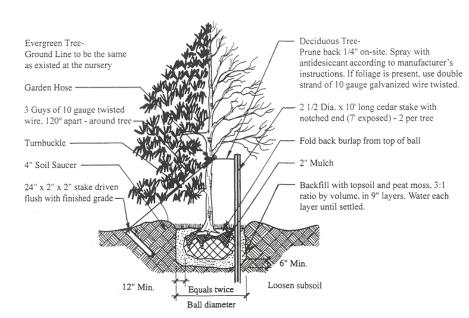
10.7.2.2 On the palette, the plants appear in alphabetical order by their botanical name, followed by their common name, design characteristics, cultural information, recommended use and miscellaneous notes. The plant palette is presented in a matrix format in Appendix O.

10.7.3 The Plant Categories.

10.7.3.1 Plants from the plant palette with similar characteristics have been cataloged in the Plant Categories (Fig. 10.X). These characteristics could be cultural (e.g.,

upright, narrow form), environmental (e.g., shade tolerant), ornamental (e.g., red fall color), or functional (e.g., screening plant). Characteristics include: Cultural Conditions (mature height and form and spread, growth rate, disease and pest resistance), Environmental Conditions (sun/shade, pH range, soil moisture required, and wind/sun), and Ornamental Characteristics (flower color, autumn color, fruit color, and/or summer leaf color).

10.7.3.2 Each category describes a list of plants that share a similar quality. For example, materials that are shade tolerant would be placed in the Shade



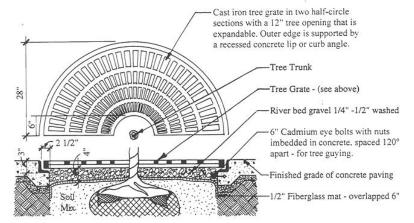


Fig. 10.X - Install Plant Material According to Industrial Standards

Tolerant group under the "Environmental Conditions" heading. To further explain the Categories, under the "Environmental Conditions" heading, in the Shade Tolerant group, all shade tolerant deciduous trees would be listed under "Deciduous Trees"; all shade tolerant Coniferous trees would be listed under "Coniferous Trees"; and so on.

10.8 PLANT MATERIAL INSTALLATION

- 10.8.1 A key step in assuring successful planting is to select plants of the highest quality. Plant material should be of the size, genus, species, and variety to comply with the recommendations and requirements of the "American Standard for Nursery Stock" ANSI Z60.1.
- 10.8.2 As part of the design process and prior to plant installation, review the installation's Master Plans, Basic Information Maps or As Built Drawings for utility locations and verify with the Directorate of Public Works or equivalent.
- 10.8.3 The planting and establishment of trees, shrubs, ground covers, and vines is detailed in TM 5-803-13, Chapter 3.
- 10.8.4 General Guidelines for Plant Installation.
- 10.8.4.1 At planting time, thin plants by removing one-third of the vegetative material.
- 10.8.4.2 Spray all evergreens with an antidesiccant within 24 hours of planting.
- 10.8.4.3 Water all plants thoroughly during the first 24-hour period after planting.
- 10.8.4.4 Site all plants and stakes plumb.
- 10.8.4.5 Space plants according to their mature size (Fig. 10.X).
- 10.8.4.6 Install plant materials in groups for greater impact (Fig. 10.X).
- 10.8.4.6 Installation of Lawn Areas.

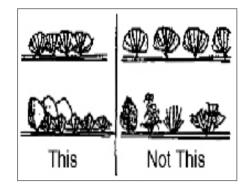


Fig. 10.X - Space Plants According to their Mature Size

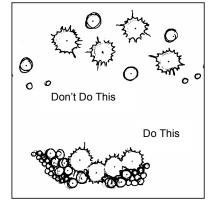


Fig. 10.X - Grouped Plants Have Greater Impact

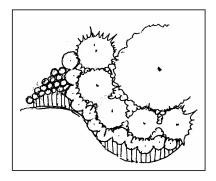


Fig. 10.X - Group Plants in Mulched Beds to Reduce

10.8.4.7 Installation techniques for turf is detailed in <u>TM 5-803-13</u>, Chapter 4. The details include site evaluation, site preparation, selection of turf, and maintenance requirements.

10.9 MAINTENANCE OF PLANT MATERIAL

10.9.1 The ease of maintenance should be one of the primary goals when considering the success of any planting design.

10.9.2 Pruning. In general plant material should be allowed to conform to its natural shape. This practice allows the plant to mature in a health manner, and saves the time and energy required for trimming. The pruning of trees and shrubs is done to maintain overall plant health, direct plant growth, maintain a desired shape, and increase flower or fruit development.

10.9.2.1 Pruning Shrubs.

- Do not prune shrubs flat across the top.
- Prune branches yearly on thick-branched shrubs and at the base of the shrub.
- When pruning deciduous shrubs prune shrub stems as close to the ground as possible and shrub branches as close to the stem as possible.
- When "thinning out" deciduous shrubs prune about one-third of all branches where they meet their main stem.

10.9.2.2 Pruning Trees.

- Remove a large limb by making three cuts as follows:
- Make the first cut at the bottom of the branch 12-24" from the branch attachment (Cut A, Fig 10.X).
- Make the second cut on the top of the branch within 1" of the undercut (Cut B, Fig 10.X).

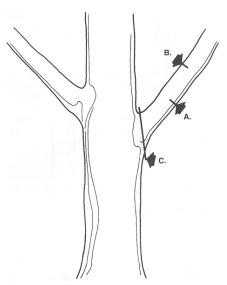


Fig. 10.X - Proper Tree Pruning Procedures

- Make the final cut just beyond the outer portion of the branch collar (Cut C, Fig 10.X). The first two cuts were necessary to remove the weight of the branch to allow cut #3 to be clean without ripping the bark.
- Never cut the central leader of the tree.
- Coniferous evergreens trees should be pruned, during the spring, by snipping off new growth. Avoid geometrically shaping plant material while pruning.

10.9.3 Mulching.

- Use mulch around the base of plant material to provide for greater moisture and help inhibit the growth of weeds and grasses. Mulch should be maintained at a depth of two (2) to four (4) inches.
- The best time to mulch for water conservation is in the late spring. Apply mulch immediately to new fall plantings.

10.9.4 Ground Cover Maintenance. Although ground covers do not require pruning, they may be periodically dug up in the spring or fall for propagation and to prevent overcrowding in their beds.

10.9.5 Landscape Maintenance Schedule. The general objective of a landscape maintenance schedule is to ensure an orderly and efficient care of the grounds. The landscape maintenance schedule included in the Installation Design Guide (See Appendix F.) identifies times throughout the year when specified maintenance should be undertaken. Use of the landscape maintenance schedule will improve all aspects of landscape on the installation. Materials and supplies can be ordered in a timely fashion, manpower needs can be calculated and anticipated, and a correlation between the level of maintenance and appropriate cost can be derived.

Installation: Develop a landscape maintenance schedule for your particular geographical area and attach as an appendix.

10.10 TREE PROTECTION AND PRESERVATION

10.10.1 Existing urban trees and forest should be preserved if they are in good health. Construction should be planned to provide for the preservation of significant trees.

10.10.2 During the clearing and construction process, trees should be protected from damage. Construction barricades should be erected to protect the existing trees to be preserved. The barricades should be no closer to the trunk of the tree than one-half the distance form the trunk to the drip line. Existing trees that cannot be preserved should be considered for transplanting to a different location on site or to a different site.

10.10.3 Changes in the grade of the soil around trees can cause extensive root damage and eventually death of the tree. To prevent damage to the tree, it is important to maintain the existing grade for least the size of the threes canopy. (the drip line) (Fig. 10.X).

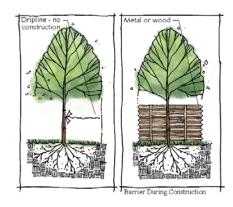


Fig 10.X - Construct a Barrier at Drip Line During Construction to Maintain Grade

10.11 ANTI-TERRORISM/FORCE PROTECTION CONSIDERATIONS

10.11.1 The presence of vegetation on an installation can have both beneficial and detrimental impacts on security. The selection and placement of landscape plant material on Army installations is an integral element in the provision of protective measures to reduce the threat of terrorism.

10.11.2 Proper selection and placement of trees and shrubs can be utilized to provide visual screening without creating concealment for covert activity. The landscape architect responsible for tree placement should work closely with installation force protection experts to design a landscape plan that provides visual screening without compromising Antiterrorism measures (Fig. 10.X).

10.11.3 The plant material must allow building occupants to see out, but must not allow outside forces to monitor interior activity. The landscape architect should incorporate the following aspects into the design:

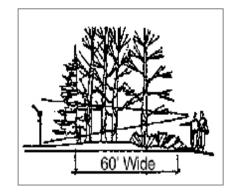


Fig. 10.X - Establish a Visual Barrier in Perimeter Setback

- Avoid conditions within 10 meters (33 feet) of inhabited structures that permit concealment of aggressors or obscure the view of objects or packages 150-millimeters (6 inches) in height from the view of security personnel. This results in the placement of shrubs and trees that are loose rather than dense in growth habit and possess multiple small stems rather than a single trunk that will obscure a 150 mm (6 inch) package.
- Vegetation groupings provide reduction of blast effect.
- Plant material selection and placement shall minimize potential hiding places for bombs and aggressors.
- Provide vegetation screens for play areas and outdoor recreation areas to obscure from off-installation view.
- Use trees to obscure sight lines of on-installation buildings from off-installation buildings (Fig. 10.X).

10.12 ARMY STANDARDS

10.12.1 The cited Army Standards shall be met.

- Army Regulation (AR) 420-70, Buildings and Structures
- Technical Manual (TM) 5-630, Natural Resources Land Management
- <u>Technical Manual (TM) 5-803-13, Landscape</u> Design and Planting
- American Standard for Nursery Stock, ANSI Z60.1
- Overseas (Host Nation Standards)

10.13 REFERENCES

10.13.1 The following references are provided for guidance.

 Unified Facilities Criteria (UFC) 2-600-01, Installation Design. Chap 10

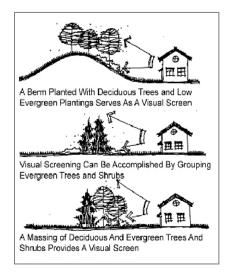


Fig. 10.X - Use Trees to Obscure Sight Lines

- USAF Landscape Design Guide
- C. Brickell and D. Joyce. *Pruning and Training*, 1996.

Links

Go to Section 11

Go to Table of

Section 1 1 SITE ELEMENTS DESIGN STANDARDS

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

11.1 INTRODUCTION

- 11.1.1 Site elements include all visual elements of the installation that are considered utilitarian in use (Fig. 11.X). These elements include the following four categories of utilitarian amenities:
- Site Furnishings
- Signs
- Lighting
- Utilities
- 11.1.2 The four sub-components provide dominant visual impacts within the installation. The specific site element features and equipment should, to the extent possible, reflect the local or regional design standards. This allows for ease of maintenance and blending into the local community. The four sub-components and their visual impacts are discussed in detail in this chapter.

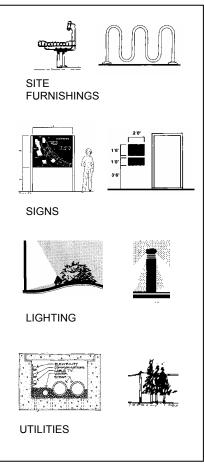


Fig. 11.X - Site Elements

11.1.3 Overseas installations should reflect consideration of local design standards.

11.2 SITE ELEMENT OBJECTIVES

- 11.2.1 The site element plans for existing and future installation use should be prepared and the site elements selected to enhance the sustainability of the installation. To this end, site elements should meet the following objectives:
- 11.2.1.1 Provide site elements that are appropriate to their intended function.
- 11.2.1.2 Establish a coordinated system of site elements that provide consistency and continuity throughout the installation to convey a sense of organization.
- 11.2.1.3 The design and location of the various site elements should express an image, character, and scale appropriate to the installation.
- 11.2.1.4 Design and locate all site elements to meet AT/FP requirements.

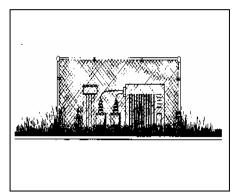


Fig. 11.X - Negative Visual Impact

- 11.2.1.5 Use recycled/salvaged materials wherever possible.
- 11.2.1.6 Minimize maintenance and repair through the use of efficient products that are vandal-proof.
- 11.2.1.7 Minimize negative visual impacts of all utility systems (Figs. 11.X and 11.X).
- 11.2.1.8 Minimize environmental impacts of all utility systems.

11.3 SITE FURNISHINGS

11.3.1 Site furnishings include all of the utilitarian outdoor amenities found on an installation. These outdoor furnishings should be located in coordinated clusters to provide areas of multi-furnishing amenities, and avoid the haphazard proliferation of furniture elements around the installation. All furnishings shall be accessible to, and usable by, persons with disabilities, in accordance with the requirements of the Americans with Disabilities Act

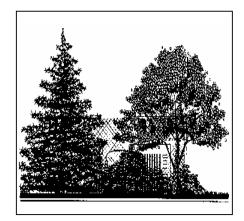


Fig. 11.X - Planted Screen Minimizes Negative Visual Impact

<u>Accessibility Guidelines (ADAAG)</u> and the <u>Uniform Federal Accessibility Standards (UFAS)</u>, with the most stringent standards to apply in the event of conflicts.

11.3.2 Site furnishings include the following:

- Seating
- Tables
- Telephone Booths
- Shelters
- Kiosks
- Walls and Fences
- Trash Receptacles
- Dumpsters
- Flagpoles
- Movable Planters
- Bicycle Racks
- Tree Grates
- Bollards
- Play Equipment
- Mailboxes
- Monuments, Memorials, Military Equipment Static Displays
- Drinking Fountains
- 11.3.3 Seating. Seating includes benches and walls, as well as tables and movable chairs.
- 11.3.3.1 Benches.
- 11.3.3.1.1 Bench Location. Benches should be located in areas of high pedestrian use, and arranged to encourage socialization within a pleasant outdoor setting. This includes pedestrian nodes along primary walkways, at major building entryways, courtyards, and at bus stops.
- 11.3.3.1.2 Bench Sitting. Benches should be sited on concrete pads adjacent to walkways. Provide proper clearance around benches, a minimum 2'0" setback from adjacent sidewalks and a minimum of 5'0" between front of bench and any stationary obstacle.

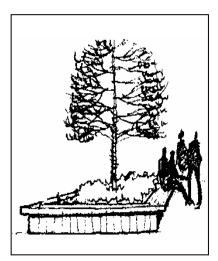


Fig. 11.5X - Planter Serves as Bench

Provide appropriate planting treatment for visual definition and seasonal shade.

11.3.3.1.3 Bench Design.

Installation: Specify the type of bench or benches that are to be used throughout the installation, include the manufacturer and style name, number, and color. Note: follow the previous material by "or equal".

Suggested material follows.

11.3.3.1.3.1 Wood Benches. Wood benches with backs are appropriate for the informal gathering, resting, eating and waiting uses characteristic of the community facility areas. Benches should be a contoured style, constructed of 2 1/2" x 2 1/2" redwood or dark brown recycled plastic members. Standard bench size should be 6'-0" long. Metal support base should have a dark brown factory finish to match standard trim color. Bench dimensions should meet specifications presented in the Technical Manual (TM) 5-803-5, Installation Design Manual, Fig. 2.5, page 8. Wall mounted benches should be similar in style and color to free standing benches.

11.3.3.2 Seating Walls.

11.3.3.2.1 Seating Walls Location. Wherever possible, seating should be incorporated into planter boxes or retaining walls, particularly at building entrance area. Seating walls should be integrated into the overall area design and the pedestrian circulation system.

11.3.3.2.2 Seating Wall Design. Seating walls should generally be between 18" and 22" high, and 12" to 18" wide and constructed of textured concrete or brick in a manner to complement or match the materials of the adjacent buildings (Fig. 11.X).

11.3.3.3 Tables. Locate tables together with seating that is oriented to the user needs of socializing, relaxing, or eating in less formal spaces with a pleasant setting and attractive view.

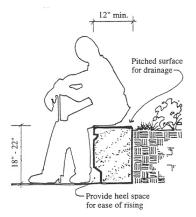


Fig. 11.X - Retaining Wall/Seating



Fig. 11.X - Trellis and Vines Provide Shelter

11.3.3.3.1 Table Location. Small groupings of tables in high visibility areas should be placed within proximity of recreation or food service facilities. These groupings should be located on hard pavement areas adjacent to walkways. Pavement should be constructed of exposed aggregate or broom finish concrete. Incorporate tree plantings and overhead trellis structures within these areas to provide shade and spatial definition (Fig. 11.X).

Installation: Specify what type of tables are to be utilized throughout the installation, include the manufacturer and style name, number, and color. Note: follow the previous material by "or equal".

11.3.3.3.2 Table Materials. *Installation:Complete*

11.3.3.4 Chairs.

Installation: Specify what type of chairs are to be utilized throughout the installation, include the manufacturer and style name, number, and color. Note: follow the previous material by "or equal".

11.3.3.4.1 Chair Type(s). *Installation: Complete*

11.3.4 Telephone Booths. Telephone booths should be incorporated into building architecture, utilizing building recesses and overhangs, or integrated into bus or other shelters. Provide a minimum 3'0" clearance between booths and the edge of walkways. All service line wiring should be underground or concealed. Booths should be equipped with lighting for nighttime use. In sheltered areas, use standard wall-mounted phone enclosures.

11.3.5 Shelters.

11.3.5.1 There are many different types of shelters on military installations. Shelters are provided for those waiting for buses, and in areas where people congregate to socialize or eat such as in courtyards or picnic areas.

Installations: Insert pictures with captions as appropriate - Fig. 11.X etc.

Installation: Specify what type of shelter(s) are utilized throughout the installation. For example, what type of shelter is used at bus stops and types used in courtyards and picnic areas.

Suggested material follows.

11.3.5.1.1 Bus Shelters.

11.3.5.1.1.1 Bus Shelter Location. Bus shelters should be located at major facilities along the bus route such as Commissary/Post Exchange areas, barracks areas, Hospital, and Library. Bus stops should relate to major pedestrian walkways, and be placed on concrete pads. Provide a minimum 3'0" clearance between shelters and the edge of walks.

11.3.5.1.1.2 Bus Shelter Design. Bus shelters should provide protection from wind, rain and sun with an overhead roof with enclosure on three sides. Side enclosures should be a clear transparent, unbreakable type material to allow for adequate visibility. Bus shelter design typically should be simple and consistent throughout the post, matching the existing units in terms of materials, scale and detail. Shelter design should have similar character as that for kiosks and vending machine shelters. Bus shelters should have a minimum size of 5' by 8' with a minimum height of 6'-6" from floor to underside of roof. The shelters should include an integral bench, trash receptacle, and ashtray.

11.3.5.1.2 Picnic Shelters.

11.3.5.1.2.1 Picnic Shelter Location. Picnic shelters should be strategically located and sized for shared use to discourage the proliferation of small shelters scattered throughout the installation.

11.3.5.1.2.2 Picnic Shelter Design. Picnic shelters can be open on all sides. The minimum size should be 20 feet square with a minimum 8-foot vertical clearance.

Installations: Insert pictures with captions as appropriate - Fig. 11.X etc.



Fig. 11.X - Bus Shelters Enclosures Should Allow For Adequate Visibility

Installations: Insert pictures with captions as appropriate - Fig. 11.X etc.

11.3.6 Kiosks

11.3.6.1 Kiosks Location.

Kiosks can be used as information centers at pedestrian nodes within the town center. Provide kiosks only where they are needed on a concrete base adjacent to walkways. Allow a minimum of 3' clearance on all sides.

11.3.6.2 Kiosks Design.

Kiosk design should blend compatibly with other site furnishings and with the architectural character of the zone in terms of form, scale and materials. A similar design treatment should be established for kiosks and shelters.

11.3.7 Walls and Fences.

11.3.7.1 Location and Use.

Walls and fencing should be used to provide visual screening, define pedestrian plaza areas, wind screening, pedestrian and vehicular control, security, and to retain soil. The design of walls and fences should fulfill their function in harmony with the character and appearance of their setting.

11.3.7.2 Walls.

Low walls should be used to define pedestrian court areas and provide informal seating. Screening walls can be used where appropriate to screen building service areas. Walls adjacent to walkways should be free of any projections, such as signs or drain pipes that would pose a hazard to passing pedestrians. Construction of walls should incorporate either brick to match adjacent buildings, with stone or concrete cap (Fig. 11.X), or concrete with a textured finish and stone or concrete cap. Retaining walls may be constructed of brick, native stone, versa-lock modular stone with a light tan finish, or concrete block with a light tan stucco finish, concrete block planters, or other appropriate material (Fig. 11.X). Walls used to screen service areas or trash enclosures should incorporate landscape plantings to help reduce the negative visual impact of these areas.

11.3.7.3 Fences. *Installation: Rewrite to installation standard.*

Fences should be utilized for screening of service areas and site utilities, particularly dumpsters. Screen fencing should consist of square tubular metal posts and rails with vertical

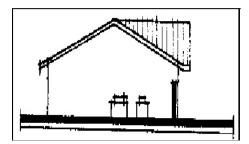


Fig. 11.X - Screen Wall Hides Mechanical Equipment

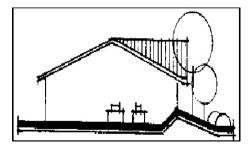


Fig. 11.X - Berm and Hide Mechanical Equipment



Fig. 11.X - Retaining Wall Constructed of Concrete Block Planters

wood fence boards. All fence posts should be securely anchored with concrete footings. All metal posts and framework should be painted standard dark brown and wood fencing should be western cedar. Hardware shall be stainless steel to prevent rust. Chain link fences should be screened with trees and shrubs. The use of chain link fence should be held to a minimum in the cantonment area.

11.3.8 Trash Receptacles.

11.3.8.1 Trash Receptacle Location.

Trash containers should be highly visible and accessible for effective litter control. Containers should be located conveniently along walkways, near major pedestrian intersections, near building entrances and near seating and eating areas. Antiterrorism/force protection requirements restrict the location of dumpsters to a minimum of 10 meters (33 feet) from inhabited buildings and 25 meters (82 feet) from billeting and primary gathering areas (*Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings*, Table B-1).

11.3.8.2 Trash Receptacle Design.

Container should be of a design that is compatible and in harmony with other site furnishings.

Installation: Specify what type of trash receptacles are to be utilized throughout the installation, include the manufacturer and style name, number, and color. Note: follow the previous material by "or equal".

11.3.8.4 Trash Receptacle Type. *Installation:Complete*

11.3.8.3 Dumpsters.

11.3.8.3.1 Dumpster Location.

The location of dumpsters can have a significant visual impact and should be addressed as part of an overall building design and incorporated in site planning. To the greatest extent possible, incorporate dumpster placement into areas screened with walls, fencing, or plant material (Fig. 11.X). Avoid locating dumpsters along major circulation or use areas. Dumpsters should be directly accessible by

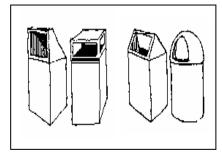


Fig. 11.X - Trash Receptacle

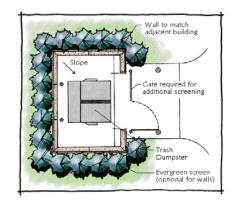


Fig. 11.X - Enclose Dumpsters with Walls, Fences, or Plantings and Place on Concrete Pad

way of a paved service drive or parking lot with adequate overhead clearance for collection vehicles. Antiterrorism/force protection requirements restrict the location of dumpsters to a minimum of 10 meters (33 feet) from inhabited buildings and 25 meters (82 feet) from billeting and primary gathering areas (<u>Unified Facilities Criteria (UFC) 4-010-01</u>, <u>DoD Minimum Antiterrorism Standards for Buildings</u>, Table B-1).

11.3.8.3.2 Dumpster Site Design.

Incorporate plantings to buffer the visual impact of screen walls. Walls or fencing should be a maximum 6' in height. Provide a minimum 3' clearance on each side between screen walls and dumpsters to allow adequate pedestrian and truck access. All dumpsters should be placed on concrete pads with aprons large enough to encompass the bearing points of the service vehicle.

11.3.9 Flagpoles.

The standard flagpole for *(Installation Name)* will be tapered mill finish aluminum, fitted with a gold anodized finish "ball" finial (Figure 11.X). The mounting detail should be simple with a concrete base flush at grade. A concrete pad should be used when poles are located in lawn areas. In plaza areas, flagpole locations and mounting detail should be integrated into the paving pattern. Flagpoles should include lighting and may be accented with planting beds around the base of the flagpole.

11.3.10 Planters.

11.3.10.1 Movable pre-cast concrete planters may be used outside building entrances to provide seasonal color and interest and function as security threat barriers (Fig. 11.X). Planters should be located so they block uninterrupted vehicular access to a building, but not so they excessively impede pedestrian movement. Several planters of various sizes should be grouped together to produce an aesthetically pleasing display.

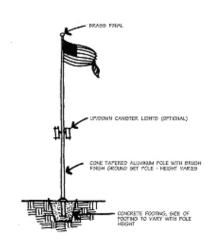


Fig. 11.X - Standard Flagpole



Fig. 11.X - Movable Planters

11.3.10.2 Planters Sizes and Design.

Installation: Specify what planters to utilized throughout the installation, include the manufacturer and style

name, number, and color. If a variety of sizes and styles are deemed necessary define the size and style to be used for specific circumstances.

11.3.11 Bicycle Racks.

Bicycle racks should be provided at key destination locations. They should be located on a concrete surface where they will not impede pedestrian movement or block building entrances. *Installation: Rewrite to installation standard.*

A ribbon type tubular aluminum bike rack with an anodized dark bronze finish is the post standard (Fig. 11.X). Bicycle storage areas near barracks should be covered.

11.3.12 Tree Grates.

Tree grates should be used when installing trees in large paved areas such as pedestrian plazas, walks and ceremonial entrance courts. Tree grates and planting pits should be a minimum of 5'x 5'.

11.3.13 Bollards.

Bollards are utilized to separate vehicular and pedestrian traffic, to direct access, or as decorative elements in pedestrian areas.

Installation: Specify the installation-wide bollard standard and provide the recommended locations for bollards. If a variety of sizes and styles are deemed necessary define the size and style to be used for specific circumstances.

11.3.14 Playgrounds/Tot Lots.

11.3.14.1 The playgrounds and tot lots within the installation should utilize equipment that is consistent throughout the installation or that meets specific criteria of materials, color, and design (Fig. 11.X).

Installations: Insert pictures with captions as appropriate - Fig. 11.X etc.

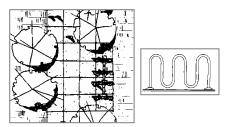


Fig. 11.X - Bicvcle Rack System

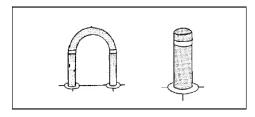


Fig. 11.X - Bollard Types

11.3.14.2 Playground Planning and Design.

Guidance for planning and designing unsupervised outdoor play areas that meet child safety and child development requirements is found in Technical Manual (TM) 5-803-11, Children's Outdoor Play Areas. The guidance given in this publication meets the needs of children with and without disabilities.

11.3.14.3 Playground Inspection and Maintenance.

A play area inspection and maintenance program for Child Development Centers can be found in <u>Technical Manual (TM) 5-663</u>, <u>Child Development Center</u>, <u>Play Area Inspection and Maintenance Program</u>.

Fig. 11.X - Playgrounds and Tot Lots Specific Criteria of Materials, Color, and Design Throughout the Installation

11.3.14.4 Recalled and Banned Playground Equipment.

For updates on banned or recalled playground equipment consult the <u>Consumer Product Safety Commission Press</u> Releases and Recalls web site.

Installation: Specify a set of design standards for the selection and placement of playground equipment or a specific manufacturer with style name, style number, and color. Note: follow the previous material by "or equal".

11.3.15 Mailboxes.

11.3.15.1 All mailboxes should be located in close proximity to the facility they serve. However, when locating mailboxes consider the potential for the site element being used as a container for the concealment of explosive, etc. Consider Antiterrorism/force protection requirements for locating similar container types i.e. trash receptacles which are located a minimum of 10 meters (33 feet) from inhabited buildings and 25 meters (82 feet) form billeting and primary gathering areas (*Unified Facilities Criteria (UFC) 4-010-01*, *DoD Minimum Antiterrorism Standards for Buildings*, Table B-1)

11.3.15.2 The location should be coordinated with the Postal Services.

- 11.3.15.3 If group mailboxes are required, provide central locations for them adjacent to hard-surface walkways but not to impede pedestrian movement.
- 11.3.16 Monuments, Memorials, and Military Equipment Static Displays.
- 11.3.16.1 Monuments and static displays should be carefully designed and placed in prominent locations to serve as visual focal points within the installation. Static displays of equipment should be consolidated in one location to create a central museum or exhibition facility within the installation.
- 11.3.16.2 Memorials will conform to the guidance set forth in Army Regulation (AR) 1-33, *Memorial Programs*.
- 11.3.17 Drinking Fountains.

Outdoor drinking fountains should not be provided, except to support larger playgrounds, outdoor recreation facility complexes, and outlying recreation areas if convenient to a potable water supply line. Steps should be provided for children and the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and Uniform Federal Accessibility Standards (UFAS) standards meet.

11.4 SIGNS

11.4.1 Signs are used to visually communicate information. They are highly visible features that should be attractive and compatible with their surroundings. Careful consideration must be given to what a sign says, how it is said, its visual appearance and organization, its location, structural support system, and relation to other signs within the installation. Standardized signage systems facilitate movement, provide a sense of orientation, and reinforce standards of excellence. Signage creates a unifying element throughout the installation that visually ties the installation themes together and builds a reference and continuity that translates into confidence and reassurance when traveling throughout the installation. The standards to apply for signage color, type, and sizing is found in Technical Manual (TM) 5-807-10, Signage.

11.4.2 Sign System Characteristics. There are several basic design characteristics that, by serving to convey necessary

information clearly and attractively, are an integral part of any successful signage system.

- 11.4.2.1 Simplicity. An effective strategy provides only needed information, avoids redundancy and eliminates oversigning with resultant clutter and visual confusion. Sign messages must be clear, simple, and easy for motorist to process quickly.
- 11.4.2.2 Continuity. It is essential that the system be applied uniformly and consistently throughout the entire installation. The importance of consistent implementation extends from the lager issues of sign type and size down to accurate color continuity and matching typestyles.
- 11.4.2.3 Visibility. Sign location is a very important ingredient within the system. Signs must be located at significant decision points and oriented to provide clear sight lines for the intended user. Close coordination of locations with respect to landscaping, utilities, adjacent signage, and various other street design elements is important to ensure long-term maximum visibility.
- 11.4.2.4 Legibility. Sign typestyle, line spacing, color, and size all combine to create the crucial design characteristics of legibility. This aspect of sign design should take into consideration users such as motorist, pedestrians or bicyclists, and the relative travel speed at which each type of user will be traveling when viewing the signs.
- 11.4.3 Vocabulary-Communications.
- 11.4.3.1 A common language has been created for establishing a signing system. The different components that create the sign package have been named and referred to within the total signing system.
- 11.4.3.2 The creation of a "signing language" helps generate a unified bond within sign types that make up a signing family.
- Reference
 - Information/Message
 - Presentation

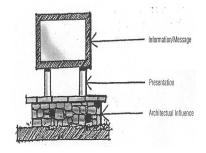


Fig. 11.X - Signing Language Helps Establish A Signing System

- Architectural Influence
- Graphic Architecture

11.4.4 Visual Hierarchy.

- 11.4.4.1 The entire signing system must communicate through a range of sign and typestyle sizes the relative importance of the individual activity that the sign identifies. The system should follow a logical progression from a point of origin to the desired destination.
- 11.4.4.2 A stated ranking method supports the visual standard of hierarchy within the signing system. Signs can be organized within assigned classes with emphasis on the function and image of the installation.
- 11.4.4.3 Within each class, the level of architectural influence evokes the importance of the sign to the installation. This is also critical to the idea of progression. The importance of a sign must be presented in its size and level of detail.
- 11.4.4.4 As individuals move closer to their destination on the installation, the scale of the sign becomes progressively smaller and the level of the message more detailed.
- 11.4.5 Types of Signs.

11.4.5.1 Information / Identification Signs.

These are signs that identify entrances to the installation, areas within the installation, major tenants, buildings and organizational or functional components (Fig. 11.X). They identify a location, and greet the visitor to that location. They should be compatible in scale and character with the architecture and also blend with the natural surroundings (Fig. 11.X). These signs are designed to include the following:

- 11.4.5.1.1 Typeface: Lettering is self-adhesive backing material.
 - Building Title: Helvetica Medium, Upper and lower case
 - Building Numbers: Helvetica regular

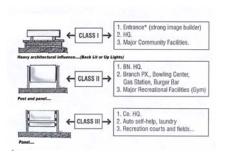


Fig. 11.X - Signs Can Be Organized Into Classes Within The Visual Hierarchy

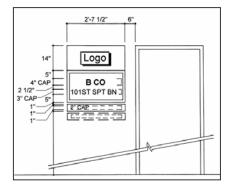


Fig. 11.X - Building Mounted Information Sign

 Building Addresses: Helvetica Medium, Upper and lower case

11.4.5.1.2 Color:

Panel: Dark Brown

Lettering: White

Post: Dark Brown

Exposed panel backs and edges: Dark

Brown

All paint semi gloss

11.4.5.1.3 Materials

Panel: Double-face 1/8" thick aluminum

Post: Steel Pipe

Foundation: Concrete pier or direct burial

Headquarters 2475 Defense Av

Fig. 11.X - Use of Street Addresses On All Building Identification Sign

11.4.5.1.4 Building Identification.

- 11.4.5.1.4.1 Street Addresses. The addressing procedures prescribed in <u>DoD 4525.8-M</u>, <u>DoD Official Mail Manual</u> are mandatory for use by all DoD components. DoD 4525.8-M, Chapter 3 prescribes the following:
- All DoD address shall be assigned so they are compatible with the United States Postal Services automated delivery point sequencing. (C3.3)
- The DoD installation is responsible for assigning citystyle, street address on the installation. (C3.3.2.2)
- Street addresses shall be assigned and used even though a DoD activity may deliver the mail to the addressee. (C3.3.2.2.1)
- Only geographically locatable civilian-style street address (such as 4102 Cindy Avenue, Fig. 11.X) shall be used. (C3.3.2.2.4)
- Installations shall not use one street address for the entire installation and then use secondary unit designators

such as "Building 123" to designate the delivery addresses on the installation. (C3.3.2.2.5)

• Addresses such as "Building 123 Roberts Street" are not a valid address format and shall not be used. (C3.3.2.2.6)

11.4.5.1.4.2 Address Placement.

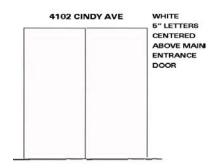
- Place addresses by the front entrance of the building so they can be seen. (C3.3.2.3.1)
- Place both the street name and address number on the building if both the building number and street address are visible from the street.
- Building identification signs will use street addresses (Fig. 11.X).
- Buildings without identification signs shall have the address number and street name centered above the main entrance or located to the right side (Fig. 11.X).

11.4.5.1.5 Housing Areas.

- 11.4.5.1.5.1 The sign should be complimentary to the architectural setting of the housing area and approved by the installation Real Property Planning Board.
- 11.4.5.1.5.2 Housing numbers should be placed on the curb in front of the respective house and on the house where lighting will effectively light the numbering.

11.4.5.1.6 Installation Identification Signs.

11.4.5.1.6.1 Installation identification signs name the installation and display the official US Army plaque (Fig. 11.X). The designation "United States Army" must appear at the top of the sign in accordance with AR 420-70, para 2-7h. Every installation entrance shall have an installation identification sign displaying only the US Army plaque, with the words "United States Army, Fort (Name of Fort), and gate name as indicated in "Figure 11.X - Installation Entrance Signs". The placement of Senior Mission Commander logo, unit crest, and other installation identification signs, monuments or displays shall be located inside the installation beyond the cleared area of the Access



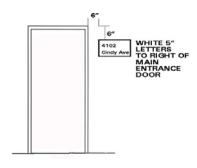


Fig. 11.X - Street Address Location at Entrance Doors



Fig. 11.X - Installation Entrance Signs

Control Point of entry. When used service- wide, these signs convey a uniform image of strength and stability to the public. Emblems, branch colors, unit mottos, names and titles of individuals are not to be displayed.

11.4.5.1.6.2 Installation identification signs consist of three types:

- Sign type A1, main entrance sign, identifies the principal visitor entrance.
- Sign type A2, secondary entrance sign, identifies entry points with relatively high volumes of visitor traffic.
- Sign type A3, limited access entry gate signs, identifies entry points with limited public access.

11.4.5.1.6.3 See <u>Technical Manual (TM) 5-807-10</u>, <u>Signage</u>, paragraph 3-3, for sign specifications and paragraph 3-11 for sign placement guidelines.

11.4.5.1.6 Street Signs.

Street name identification signs should be designed with the same lettering, color and materials as other information signs (Fig. 11.X).

11.4.5.1.7 Wheeled Electrical Signs.

Wheeled electrical signs will have an attractive presentation. Temporary landscape elements should be used whenever possible. The siting of this type of sign will be approved by the RPPB. No sign of this type will be left in place for longer than six (6) months. After which time, the sign will be removed or turned into a permanent sign.

11.4.5.2 Directional Signs.

These signs guide the motorist or pedestrian in, around, and out of the installation (Fig. 11.X). The legibility and placement of these signs, as well as the ordering of information, is critical to their effectiveness. These signs should be placed in central locations and at major decision points along circulation routes. These signs are designed to include the following:

11.4.5.2.1 Typeface: Lettering is self-adhesive backing material.

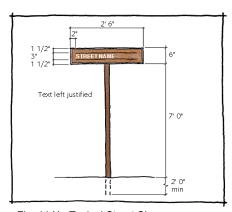


Fig. 11.X - Typical Street Signs

Helvetica Medium upper and lower case

11.4.5.2.2 Arrow:

Place at end indicating direction.

Stoke width: Helvetica Medium cap

11.4.5.2.3 Color:

Panel: Dark Brown

· Lettering: White

Post: Dark Brown

 Exposed panel backs and edges: Dark Brown

All paint semi gloss

11.4.5.2.4 Materials

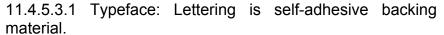
• Panel: Double-face 1/8" thick aluminum

Post: Steel Pipe

Foundation: Concrete pier or direct burial

11.4.5.3 Regulatory Signs.

These signs provide the rules for travel and parking on the installation. They include speed signs, turning and lane use signs, warning signs, parking control signs, etc. (Fig. 11.X). Related to these signs are pavement markings and traffic signals. These signs are designed to include the following:



Helvetica Medium upper and lower case

11.4.5.3.2 Color:

Panel: Dark Brown

Lettering: White

Post: Dark Brown

• Exposed panel backs and edges: Dark

Brown

All paint semi gloss

11.4.5.3.3 Materials

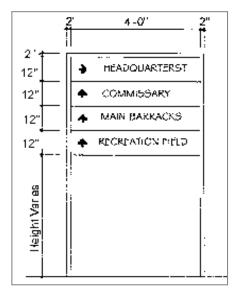


Fig. 11.X - Direction Sign

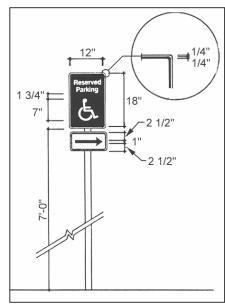


Fig. 11.X - Regulatory Sign

Panel: Double-face 1/8" thick aluminum

Post: Steel Pipe

Foundation: Concrete pier or direct burial

11.4.5.3.4 Traffic Control Signs.

11.4.5.3.4.1 CONUS Installations. National highway standards will be used for signs to regulate vehicular traffic on CONUS installation (AR 420-72, Transportation Infrastructure And Dams, Para 2-15f). These standards are described in the Manual of Uniform Traffic Control Devices (MUTCD). Also see MTMC Pamphlet 55-14, Traffic Engineering for Better Signs and Markings. This pamphlet clarifies existing standards and provides definite guidelines for installation officials to conform to the MUTCD. These standards shall be used installation wide to include installation Access Control Points.

11.4.5.2.4.2 OCONUS Installations. OCONUS installation streets and roads are to be considered extensions of the road system of the host nation and shall use traffic control device standards and criteria of the host nation (AR 420-72, Transportation Infrastructure and Dams, Para 2-15e).

11.4.5.3.5 Prohibitory (Warning) Signs. This category of signage is intended to maintain security and safety on the installation perimeter and at other specific secure areas. These signs notify visitors of restrictions, as well as other security procedures. The guidelines for design, fabrication, and placement of warning signs are found in Technical Manual (TM) 5-807-10, Signage, para 3-9.

11.4.6 Electronic Exterior Signs

All exterior flashing signs, traveling lights, or signs animated by lights of changing degrees of intensity or color are prohibited.

11.4.7 Sign Placement

Placement of signs differs according to the type of sign and the specific site constraints. The following guidelines apply to placement of the majority of signs.

Do not place more than one sign at any location.
 Traffic rules are the exception to this rule (Fig. 11.X).

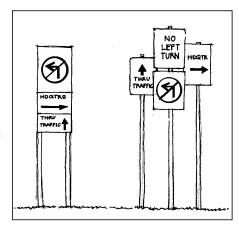


Fig. 11.X - Sign should be Simple, Legible and Combined

- Place signs in areas free of visual clutter and landscape materials.
- Place signs in locations that allow enough time for the user to read and react to the message.
- Signs should not be placed to block sight lines at intersections.
- Place signs approximately 1.2 meters (4 feet) above ground level to be within 10 degrees the driver's line of vision (Fig 11.X). Provide proper placement to avoid a hazard to children.

11.4.8 Sign System Typography.

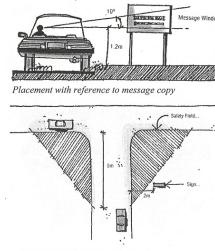
11.4.8.1 Military Emblems. The Army has a rich tradition of military heraldry. Military emblems are an important part of the soldiers' identity and the emblems have been carefully crafted over the years to express unit pride and unique history and function of the unit. The care and use of organizational emblems in a signage system can add visual interest as well as build pride and a sense of history. However, the overuse of miscellaneous emblems can lead to clutter and a dilution of their importance. Colors for military emblems must be in accordance with the Institute of Heraldry.

11.4.8.2 Department of the Army Plaque. The plaque should be displayed on installation identification signage to emphasize the heritage and professionalism of the United States Army. The design of the plaque must be in accordance with Army Regulation (AR) 840-1, Department of the Army Emblem and Branch of Service Plaques, and must be reproduced in full color.

11.4.8.3 Insignias. The use of branch insignia, shoulder sleeve insignia, coat of arms and/or distinctive insignia on headquarters signs is permitted. All military emblems must appear in full color. Motivational symbols or motifs will not be used.

11.4.9 Reduce Visual Clutter.

11.4.9.1 Over-signing detracts form a uniform sign system and if left uncontrolled will eventually destroy the integrity of the system.



Placement with reference to signing

Fig. 11.X - Placement Is Critical To Ensure Easy Readability

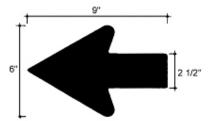
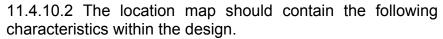


Fig. 11.X - Typical Arrow For Use On All Destination Signs

11.4.9.2 Clutter creates confusion and ineffectiveness. Often motorist and pedestrians are confused by the bombardment of messages that have no relationship to each other, or the communication is on such a minimal level that the sign serves no purpose.

11.4.10 Location Maps.

11.4.10.1 The location map is an integral element of an installation entrance. The location map display provides information and sense of place to the viewer. The design and construction should be of compatible architectural materials found throughout the installation.



- Plexiglas covered map for protection
- Architectural compatible materials used for the base
- Paved walk-up area
- Litter receptacle
- Provide parking adjacent
- Provide current takeaway maps

11.5 LIGHTING

Installation: Adjust entries to meet your particular installation lighting system: fixtures and lighting styles.

11.5.1 Lighting is a functional requirement of installations that also impacts the visual environment. The installation lighting system conveys a sense of order and organization. There are five primary types of lighting on military installations. They are:

- Roadway Lighting
- Pedestrian Lighting
- Parking Lot Lighting
- Outdoor Architectural Lighting
- Security Lighting

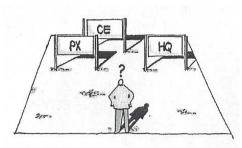


Fig. 11.X - Visual Clutter Causes Confusion

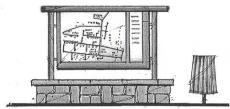


Fig. 11.X - Location Maps Provide a Sense of Place

- 11.5.2 The primary visual problem that exists with exterior lighting on most military installations has been the lack of overall coordination of a lighting system.
- 11.5.3 A lighting system provides the proper type of lighting for different lighting requirements and locations. A system is composed of six primary components fixtures, light height, type of pole, light spacing, type of lamp, and level of intensity of lamp.
- 11.5.4 The proper type of lighting for various locations is shown in the Figure 11-X matrix. (Fig. 11.X Lighting Design Matrix *Installation: Complete the matrix as applicable.*
- 11.5.5 All lighting should be located or designed to prevent undesirable spillover of light into other areas. Spotlights in particular should be aimed or screened to prevent glare that could blind motorists or pedestrians or light sleeping areas.

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11.5.6 Light Fixtures.

11.5.6.1 A lighting fixture is the frame or housing for holding the lamp in position and for protecting it from damage. Light fixtures should be selected and located to maintain the minimum foot-candle requirements for safety and security purposes. Beyond that, aesthetic considerations should take precedence.

11.5.6.2 Lighting fixtures are grouped into five general categories as defined below. Figure 11.X includes examples of four of the categories.

11.5.6.2.1 Cutoff Lighting.

Refers to the large shoebox-shaped fixtures placed on tall poles and used to illuminate streets and parking lots. They are designed to cut off light traveling to the top and sides of the fixtures, concentrating it down onto the parking lot. The fixtures reduce the spillover of light where it is not wanted.

11.5.6.2.2 Utility Lighting.

Refers to simple, inexpensive fixtures that are used in industrial areas of low visibility.

11.5.6.2.3 Bollard Lighting.

Refers to fixtures that are mounted on or in a short post to illuminate pedestrian areas. They can also be used as physical barriers between pedestrian and vehicular traffic.

11.5.6.2.4 Spotlighting.

Refers to high intensity fixtures that concentrate light into a narrow beam and are used to highlight signs and other important objects. Spotlights should be screened by landscaping or other methods so they are inconspicuous during the day.

11.5.6.2.5 Wall-Mounted Lighting.

Refers to fixtures attached to the wall of a building or a wall bordering a walkway or stairway.

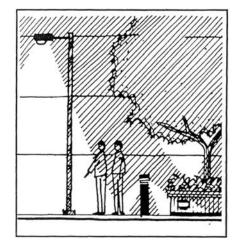


Fig. 11.X - Example of Cutoff, Bollard, Wall and Spot Lighting

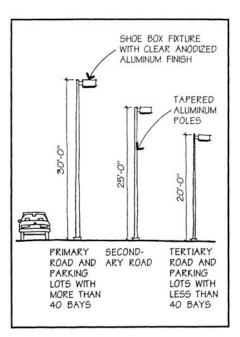


Fig. 11.X – Pole Height Determined by Function

11.5.7 Light Poles

11.5.7.1 The light fixture size should be proportional to the intended pole height.

11.5.7.2 Installation: Specify the installation light pole standards.

11.5.8 Light Fixtures and Poles.

Light poles should be consistent and provide uniformity throughout the installation. The pole height shall be determined by their intended function as shown below (Fig. 11.X).

TAPERED ALUMINUM POLE

Fig. 11.X - Pedestrian/Plaza Scale Light Fixture

11.5.9 Lamp Characteristics.

Selection of a lamp involves evaluating its optical control, efficiency, lamp color rendition, lamp life, cost and maintenance. The following is a summary of the characteristics of typical lamp types. Recommended locations for the six types are included in Figure 11.X.

11.5.9.1 Incandescent

- Superior color rendition
- Inexpensive
- Good optical control
- Short life span
- Lowest efficiency

11.5.9.2 High Pressure Sodium

- Poor color rendition
- Broad application
- Low maintenance
- Superior optical control
- Superior life span
- Excellent efficiency
- Expensive

11.5.9.3 Low Pressure Sodium

- Poor color rendition
- Good efficiency
- Superior life span
- Expensive

11.5.9.4 Fluorescent

- Good color rendition
- Poor optical control
- Good life span
- Good efficiency in mild climates
- Produces glare

11.5.9.5 Metal Halide

- Superior color rendition
- Superior optical control
- Efficiency better than mercury vapor but poorer than pressure sodium.
- Expensive

11.5.9.6 Mercury Vapor

- Good color rendition
- Good foliage lighting
- Good life span
- Good efficiency
- Inexpensive

11.6 UTILITIES

- 11.6.1 Utility systems provide the basic infrastructure of power, communication, water, and sewer services necessary for the operation of the installation. Utilities play a key role in the visual quality on an installation. Their primary impact on the visual quality is the result of the clutter of overhead utility lines and poorly designed storm drainage systems.
- 11.6.2 The visual and environmental impact of utilities should be minimized on the installation (Fig. 11.X). Also, the

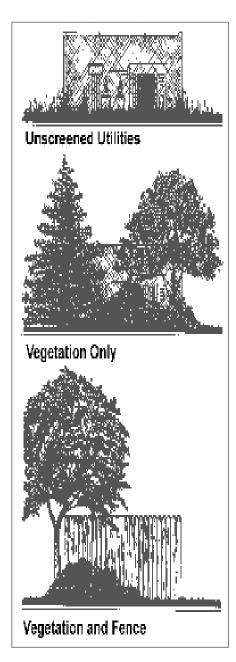


Fig. 11.X - Screen Existing Utilities to Decrease Visual Impact

systems should be designed to minimize maintenance and repair. The result is a more sustainable utility system that will promote the overall sustainability of the installation. The primary components of the utility system and recommendations for their location and design are included below.

11.6.3 Overhead Transmission Lines

11.6.3.1 Unsightly overhead utilities should be relocated underground wherever possible to reduce negative visual impacts, and reduce maintenance and repair requirements. Underground utilities are also desirable for protection from terrorist or other enemy attack. When underground locations are not possible, the negative visual impacts should be minimized by using the following design techniques:

11.6.3.2 Overhead Transmission Lines Location.

Overhead transmission lines should be aligned along edges of land use areas to avoid dividing an area and creating gaps or unusable areas. They should conform to natural landforms that can be utilized to screen them from public view. Hills should be crossed obliquely rather than at right angles. Alignments along hillcrests or steep grades should be avoided.

11.6.3.2 View Screening.

Minimize long views or silhouette views of overhead transmission lines from along roads and other public viewing areas. Avoid the "tunnel effect" of long, straight, uninterrupted views along the alignment by clearing vegetation only within the right-of-way that threatens the overhead lines. Jog the alignment at road crossings and periodically undulate and feature plant materials along the edges of the right-of-way.

11.6.4 Distribution Lines.

Power distribution lines should also be located underground to minimize negative visual impact, reduce maintenance and protect from terrorist or other enemy attack. If overhead, they should be located out of view from main public visibility areas or screened to be as unobtrusive as possible (Fig. 11.X and Fig. 11.X). Avoid alignments of overhead lines along major circulation corridors. Use minor streets, alleyways, rear lot lines, and vegetation or topography that provide screening and minimize visual impact. Minimize the



Fig. 11.X - Soften Impact of Overhead

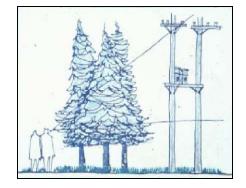


Fig. 11.X - Screen Utilities to Reduce Negative Impact

number of poles and pole height, and use poles that blend into their surroundings to reduce visual impact. Poles should also be multi-functional for power, telephone, cable television, street lighting, etc., to reduce visual clutter.

11.6.5 Substations and Transformers.

Substations and transformers should be designed and located to minimize their visual impact and be compatible with the character of their setting. Substations are best located in industrial use areas rather than in major public circulation areas. They should be screened from public view by using plant material, berms, and walls.

11.6.6 Sewer and Water.

11.6.6.1 All sewer and water lines should be underground.

11.6.6.2 Sewage treatment facilities should be located 1,250 ft. (0.38 Km) distance and in a downwind direction from all inhabited facilities.

11.6.6.2 Treatment facilities should be screened from view of major roads and other installation facilities by plant material, berms, walls, and fences.

11.6.6.3 A water storage tank that has visual strength in its form can be used as a focal point or identifying landmark that can provide a sense of orientation within the installation.

11.6.6.4 Fire hydrants should be highly visible and free of any screening. They shell be nutmeg brown in color with luminous paint. Caps shall indicate tested water pressure (Fig. 11.X).

11.6.7 Storm Drainage

11.6.7.1 Installation storm drainage systems should be appropriate to the character of development they serve. Storm drainage systems in densely developed areas require curbs, gutters, and underground lines. Storm drainage systems in low-density areas can utilize drainage swales and ditches that are contoured to be compatible with the natural landform. Where retention ponds are required, they should be designed to appear as a natural amenity that is part of the natural contour of the land, rather than a square or rectangular hole in the ground. Retention ponds that are designed to be dry most of the time can be utilized for recreational purposes or as open space. In either case, the



Fig. 11.X - Fire Hydrants Shall be Nutmeg Brown. Caps Shall Indicate Tested Water Pressure

areas should be designed to conform to the natural contours of the land.

11.6.7.2 Large hard surfaced parking lots should have covered drainage at the entry to prevent water draining into adjacent streets.

11.7 ARMY STANDARDS

11.7.1 The cited Army Standards shall be met.

- DoD 4525.8-M, DoD Official Mail Manual
- Army Regulation (AR) 420-49, Utility Services
- Army Regulation (AR) 420-70, Buildings and Structures
- Army Regulation (AR) 420-72, Transportation Infrastructure and Dams
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)
- Technical Manual (TM) 5-807-10, Signage
- Manual of Uniform Traffic Control Devices (MUTCD)
- MTMC Pamphlet 55-14, Traffic Engineering for Better Signs and Markings
- <u>Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum</u>
 Antiterrorism Standards for Buildings

11.8 REFERENCES

11.8.1 The following references are provided for guidance.

- Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap 11
- Army Regulation (AR) 1-33, *Memorial Programs*

- Army Regulation (AR) 840-1, Department of the Army Seal, and Department of the Army Emblem and Branch of Service Plaques
- <u>Technical Manual (TM) 5-663, Child Development</u> <u>Center, Play Area Inspection and Maintenance Program</u>
- <u>Technical Manual (TM) 5-803-5, Installation Design</u> *Manual*
- <u>Technical Manual (TM) 5-803-11/Air Force AFJMAN 32-10139, Children's Outdoor Play Areas</u>

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FORCE PROTECTION DESIGN STANDARDS

Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

12.1 INTRODUCTION

- 12.1.1 Accommodating the need for security and antiterrorism is a significant concern for all military facilities design. The security and antiterrorism requirements must be integrated into the total project. Design of protective elements should seek to visually enhance and complement the design of a facility. Site elements such as fences, courtyards, screen walls, swales, berms, planters, and retaining walls can be used effectively for facility protection. These design elements should be designed to provide visual harmony with the main facility, producing architectural compatibility through consistent use and application of materials, forms, and colors.
- 12.1.2 Final design decisions to meet security and antiterrorism requirements and resolve conflicts will require coordination among the design disciplines and appropriate functional areas to include land planners, landscape architects, architects, intelligence personnel, security personnel, Force Protection Officer, facility users, and engineers. The designers must work to balance force protection requirements with all other requirements that

Installations: Insert pictures with captions as appropriate - Fig. 12.1 - etc.

impact design and development. These include the Americans with Disabilities Act Accessibility Guidelines (ADAAG), the Uniform Federal Accessibility Standards (UFAS), National Fire Protection Codes (NFPA), and all applicable local building codes and ordinances. The design team will also consult security personnel to determine whether portions of the design documents are subject to access limitations.

12.2 Building Siting and design standards

12.2.1 A primary concern for Army installations throughout the world is the threat of terrorist attack. To minimize the likelihood of mass casualties from terrorist attacks against DoD personnel in the buildings in which they work and live DoD has developed the <u>Unified Facilities Criteria (UFC) 4-010-01</u>, <u>DoD Minimum Antiterrorism Standards for Buildings</u>.

12.2.1.1 UFC 4-010-01 establishes the minimum building antiterrorism standards for all DoD components.

- Mandatory DoD minimum antiterrorism standards for new and existing inhabited buildings are contained in Appendix B.
- Mandatory DoD minimum antiterrorism standards for expeditionary and temporary structures are contained in Appendix D.
- Additional recommended measures for new and existing inhabited buildings are contained in Appendix C.

Implementation of the mandatory standards is obligatory for all new construction regardless of the funding source. These standards apply to FY 2004, and all subsequent fiscal years, for projects involving new construction and major renovations for inhabited structures. The standards will be reviewed before any site planning or design is initiated.

12.2.1.2 Minimum Standoff Distances and Separation for Buildings:

 The minimum standoff distances and separation for new and existing buildings are found in Table B-1 of UFC 4-010-01.

- The minimum standoff distances and separation for expeditionary and temporary structures are found in Table D-1 of <u>UFC 4-010-01</u>.
- 12.2.1.3 The DoD minimum standards, when applicable, may be supplemented by more stringent force protection building standards to meet specific threats inherent in the geographical area where the facility is to be constructed. Those additional requirements may be established by either standards for specific Combatant Commanders or based on Risk and/or Threat Analysis.
- 12.2.1.4 When the minimum standoff distances can not be achieved because land is unavailable, the standards allow for building hardening to mitigate blast effects. Costs and requirements for building hardening will be are addressed in the DoD Security Engineering Manual. (See para 12.2.2 below for information regarding the DoD Security Engineering Manual.)
- 12.2.2 Implementing Design Guidance. Additional guidance on applying the *DoD Minimum Antiterrorism Standards for Buildings* will be found in UFC 4-010-02, *DoD Security Engineering Manual*. Currently, this document is in draft form. Until the *DoD Security Engineering Manual* is published, see the guidance provided on the <u>Security Engineering Working Group</u> website.
- 12.2.2.1 Website Access for Military and Government Users. This is a password protected website. To enter the site you must be accessing the site from either a ".mil" or ".gov" address. Upon initial entry, you will be prompted with instructions on how to acquire your password.
- 12.2.2.2 Website Access for Non Military and Government Users. Currently, the Protective Design Center is developing a procedure for e-mailing the network administrator to receive procedures to enter the site. If upon initial entry into the site there are no instructions on this procedures, contact the Protective Design Center (CENWO-ED-S) at (402) 221-3151 for instructions.
- 12.2.3 Orientation of Buildings on a Site. The following will be given consideration when determining the orientation of a building.

- 12.2.3.1 Deny aggressors a clear "line of sight" to the facility from on or off the installation where possible. Protect the facility against surveillance by locating the protected facility outside of the range or out of the view of vantage points.
- 12.2.3.2 Protect against attack by selecting perimeter barriers to block sightlines such as obstruction screens, trees, or shrubs. Non-critical structures or other natural or man-made features can be used to block sightlines.
- 12.2.3.3 Create "defensible space" by positioning facilities to permit building occupants and police to clearly monitor adjacent areas.
- 12.2.3.4 If roads are nearby, orient building so that there are no sides parallel to vehicle approach routes.
- 12.2.3.5 Design vehicular flow to minimize vehicle bomb threats, avoid high-speed approach into any critical or vulnerable area.
- 12.2.3.6 Avoid siting the facility adjacent to high surrounding terrain, which provides easy viewing of the facility from nearby non-military facilities.

12.3 FENCING

- 12.3.1 Fences are used as protective measures against project-specific threats. They are most appropriately used to define boundaries and to deter penetration of a secure area (Fig. 12.X). A fence will assist in controlling and screening authorized access to a secured area. Fences also serve the purposes listed below.
- 12.3.1.1 As a platform for the Intrusion Detection System.
- 12.3.1.2 As a screen against explosive projectiles.
- 12.3.1.3 To stop moving vehicles if they are reinforced to do so.
- 12.3.2 Plants with tall growth habits and/or large mature growth will be located well away from security fences.



Fig. 12.X - Fences offer various Force Protection measures

12.4 LANDSCAPE CONSIDERATIONS

- 12.4.1 Landscaping guidelines for buildings should not be ignored because of standoff distances. The landscape design should enhance the overall attractiveness of the facility while still providing or enhancing the objective level of security level of security.
- 12.4.2 Establish clear zones along both sides of security fencing. Vegetation in the clear zone should not exceed four inches in height. (DoD 0-2000.12-H, *Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence*, Appendix EE, Table EE-4)
- 12.4.3 Strategically locate trees and planters to prevent penetration of an attack vehicle into the secure area perimeter.
- 12.4.4 Vegetative groupings and earth sheltering berms provide inherent blast effect reduction from external blast forces.
- 12.4.5 Plant material that can provide concealment will not be used adjacent to high security structures or fence lines.
- 12.4.6 Use dense, thorn-bearing plant material to create natural barriers to deter aggressors.
- 12.4.7 Screen play and outdoor recreation areas from public (off-installation) view.
- 12.4.8 Designers need to balance the need for signs that identify, locate, and direct residents and supported personnel to installation assets, versus the need to discourage and frustrate hostile intelligence gathering and access. One method of achieving this balance could be to direct people to a community support or information center to obtain directions to high security activities. Another could be "All incoming personnel and visitors report to building number ____."
- 12.4.9 Place trash containers as far away from the facility as possible. Antiterrorism/force protection requirements restrict the location of dumpsters to a minimum of 10 meters (33 feet) from inhabited buildings and 25 meters (82 feet) from billeting and primary gathering areas (*Unified Facilities*)

<u>Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism</u> <u>Standards for Buildings</u>, Table B-1).

12.4.10 Unobstructed Space. Ensure that vegetation and site features within 10 meters (33 feet) of inhabited buildings do not conceal form observation objects of 150mm (6 inches) in height. (UFC 4-010-01, Appendix B, Para B-1.3) This does not preclude landscaping within the unobstructed space, but it will affect the design and may affect plant selection.

12.5 LIGHTING

Lighting systems for security operations provide illumination for visual and closed-circuit television (CCTV) surveillance of boundaries, sensitive inner areas, and entry points. When CCTV is used as part of security operations, the lighting system will be coordinated with the CCTV system. The specific installation environment and the intended use determines lighting system requirements. Often two or more types of lighting systems are used within a single area (Fig. 12.X). Guidance on the use of security lighting may be obtained from TM 5-811-1, Electrical Power Supply and Distribution.

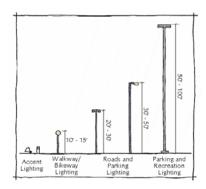


Fig. 12.X - Lighting creates a deterrent

12.6 BERMS

12.6.1 Use of berms for force protection can fulfill one of more of the following functions (Fig. 12.X).

- Define boundaries of property or boundary limits.
- Provide a barrier to moving vehicles.
- Hinder pedestrian movement.
- Intercept projectiles.
- Obstruct lines of sight.

12.6.2 Berms used to block lines of sight or projectiles must be high enough to achieve those objectives or may be combined with landscaping or other construction elements. Detailed design guidance is contained in Army Technical Manual (TM) 5-853-3/AFMAN 32-1071, Vol. 3, Security Engineering Final Design. (Note: this manual is a "For



Fig. 12.X - Berms can serve many Force Protection functions

Official Use Only" document and is not accessible on the Army Corps of Engineers publications website. A copy of the manual can be acquired by ordering it through your standard publications account.)

12.7 GATES AND ENTRANCES (ACCESS CONTROL POINTS)

12.7.1 Installation entry points are key components in the force protection security program. The most effective entrances accommodate the functions of observation, detection, inspection, access control, and disablement of hostile personnel and vehicles, while containing the vehicles and pedestrians until access is granted. These areas are one of the most important installation features in the creation of a sense of arrival for both installation personnel and visitors. It is important that these areas present a positive public image (Fig. 12.X)

12.7.2 The Headquarters Department of the Army, Deputy Chief of Staff for Operations and Plans, DAMO-ODL, office in coordination with the Protective Design and Electronic Security Centers of Expertise are currently developing standards for Army access control points. These standards will be published in the near future. Contact number for the current status of the Access Control Point standards is (703) 693-2906.

12.7.3 Physical Security Equipment.

12.7.3.1 The Product Manager, Physical Security Equipment (PM-PSE) under DoD Directive 3324.3 is assigned the mission of developing, fielding, and supporting Physical Security Equipment (PSE) throughout its life cycle for the Army, Joint Services, and other Government agencies.

12.7.3.2 The DoD Directive assigns specific areas of responsibility which include: interior PSE, Command and Control Systems, security lighting, force protection systems, barrier and systems, and interior and exterior robotics. The PM-PSE homepage and the DA-approved equipment Blank Purchase Agreements (BPAs) are listed below.

<u>Product Manager - Physical Security</u>
 Equipment Homepage

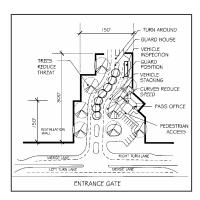


Fig. 12.X - Conceptual Entrance
Gate to Meet AT/FP Requirements

<u>DA-approved PSE Equipment Blanket</u>
 Purchase Agreements (BPAs)

12.8 INSTALLATION: ENTER PARAGRAPHS PERTAINING TO AREA SPECIFIC STANDARDS.

12.9 ARMY STANDARDS

12.9.1 The cited Army Standards shall be met.

- <u>Unified Facilities Criteria (UFC) 4-010-01, DoD</u>
 <u>Minimum Antiterrorism Standards for Buildings</u>
- Unified Facilities Criteria (UFC) 4-010-10, DoD
 Minimum Antiterrorism Standoff Distances for
 Buildings (This document is a "For Official Use
 Only (FOUO)" publication. Users may contact
 the Point of Contact posted at the noted
 website for inquires regarding this document.)
- Uniform Federal Accessibility Standards (UFAS)
- Americans with Disabilities Act Accessibility Guideline (ADAAG)
- <u>DoD Instruction 2000.16, DoD Antiterrorism</u> Standards

12.10 REFERENCES

12.10.1 The following references are provided for guidance.

- <u>Unified Facilities Criteria (UFC) 2-600-01,</u> <u>Installation Design, Chap 12</u>
- DoD Handbook 2000.12-H, Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence, February 1993 (This Handbook is a "For Official Use Only (FOUO)" publication. Users may contact the Point of Contact posted at the following

website to obtain a copy of the Handbook.) http://www.dtic.mil/whs/directives/corres/html/o200 012h.htm

- Army Regulation (AR) 525-13, The Army Force Protection Program (Available only through the <u>Army Knowledge Online</u> web portal.)
- UFC 4-010-02, DoD Security Engineering Manual, (This document is in draft form. See the <u>Security Engineering Working Group</u> website.
- U.S. Air Force, <u>Installation Force Protection</u> <u>Guide</u>: (Contains information on installation planning, engineering design, and construction techniques that will preclude or minimize the effect of a terrorist attack.)
- Technical Manuals/Air Force Manual series TM 5-853/AFMAN) 32-1071, Security Engineering, 3 volume series: (Volumes 2 and 3 are "For Official Use Only (FOUO)" and are not available on the Army Corps of Engineers publications website. A copy of the manuals can be acquired via your standard publications account. The three volumes cover, Project Development, Concept Design, and Final Design respectively.)

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Appendix A DESIGN TEAM IDG CHECKLIST

A.1 A completed Design Team IDG Checklist should be completed for all projects that impact the appearance of an Army Installation. The Master Planner shall provide the checklist to all teams designing new facilities, additions or renovations to existing facilities, or maintenance on the installation. The Design Team IDG Design Checklist is to be completed by the design team to assure the guidelines and standards have been considered and complied with in the design process, and by the Master Planner in project review.

A.2 The Designer of Record or Design Agent will provide a copy of the completed checklist, together with a signed certification statement with each design submittal [10% (pre-concept), 35%, 60%, and 90% for each MILCON projects]. The Designer of Record will complete the checklist and verify compliance in the space provided. In the case of Design Build, all agents i.e. the Corps of Engineers, NAF, AFFES, Host Nation, tenants, etc. shall have the perspective design build contractors submit a completed IDG Checklist as part of their proposal. The completed checklist will be provided to the Master Planner for review with concurrence or denial. Upon a determination of concurrence by the Master Planner, the plan and checklist with signatures will then be provided to the Real Property Planning Board for final acceptance or denial. The accepted checklist will become a part of the project record files.

A.3 If plans are denied for non-compliance at the installation or command level (where applicable) of review, an explanation of the denial will be provided to the Designer of

Record. The plan and checklist can be resubmitted with revisions as indicated in the explanation of denial.

A.4 INSTALLATION DESIGN GUIDES (IDG) COMPLIANCE CHECKLIST 1. Project Title and Description. Title: Description: Justification: 2. Project 3. Sustainable Design: a. Has SPiRiT Checklist been attached? (If not, obtain completed checklist) b. Does SPiRiT meet or exceed Silver level? ("Silver" is the standard for all FY06 MILCON vertical construction projects currently under design (as of March 18, 2003). For all other FY06 and future-year MILCON projects the minimum SPiRiT rating requirement is "Gold".) Yes - Review project as submitted. No - Return submittal to design team for revisions to meet SPiRiT. 4. Site Planning a. Was a site plan prepared for the proposed project utilizing the IDG Design

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b. Does the site plan include Site Planning Design Component guidelines of the

Process included in Sections 2, 3 and 5 of the IDG?

No

IDG?

	Yes	No
C.	Does the site plan IDG?	meet AT/FP requirements identified in Section 12 of the
	Yes	No
d.	Designer Comment	s on Site Planning:
e.	Does Site Planning	comply with IDG? If not, provide justification.
f.	Does Site Planning	meet approved installation master plan siting compliance?
	Yes	No If not, provide justification.
g.	Has NEPA been ini 2?	tiated for the construction effort in accordance with AR 200-
	Yes	No
h.	Has airspace criteri	a been consider relative to airfield accident potential zones?
	Yes	No
В	uildings	
a.	Does the building of in the IDG?	exterior design meet the Building Design objectives defined
	Yes	No
b.	Is the exterior build in the IDG?	ling designed to meet the Structural Characteristics defined
	Yes	No

5.

	C.		uilding design and structural characteristics?
		Yes	No
	d.	renovation or addition	renovation or addition to a historic building, does the on maintain the design integrity of the original building or oval Agencies' requirements for any deviations?
		Yes	No
	e.	Does the building ex	terior design meet AT/FP requirements (if applicable)?
		Yes	No
	f.	Designer Comments	s on exterior Building Design:
	g.	Does Building design	n comply with IDG? If not, provide justification.
6.	Ci	rculation	
6.		If the project include	des roadway construction, does the proposed plan meet d/or local guidelines defined in the IDG?
6.		If the project include Federal Highway and	
6.	a.	If the project include Federal Highway and Yes	d/or local guidelines defined in the IDG?
6.	a.	If the project include Federal Highway and Yes If the project include AT/FP roadway setb	d/or local guidelines defined in the IDG? No des roadway construction, does the proposed plan meet
6.	a. b.	If the project include Federal Highway and Yes If the project include AT/FP roadway set by Yes If the project include Yes	d/or local guidelines defined in the IDG? No des roadway construction, does the proposed plan meet pack requirements defined in the IDG?
6.	a. b.	If the project include Federal Highway and Yes If the project include AT/FP roadway set by Yes If the project include applicable roadway and	Mo des roadway construction, does the proposed plan meet back requirements defined in the IDG? No es roadway construction, does the proposed plan meet back requirements defined in the IDG?
6.	a. b.	If the project include Federal Highway and Yes If the project include AT/FP roadway set by Yes If the project include applicable roadway and Yes If the project include applicable roadway and Yes	Mo des roadway construction, does the proposed plan meet back requirements defined in the IDG? No es roadway construction, does the proposed plan include alignment and intersection guidelines defined in IDG?

		Location/Design guidelines defined in the IDG?
		Yes No
	f.	If the project includes pedestrian circulation, does the proposed plan meet the Walkways and Pedestrian Circulation Guidelines in the IDG?
		Yes No
	g.	If the project includes bicycle circulation, does the proposed plan meet the Bikeway Guidelines in the IDG?
		Yes No
	h.	Designer Comments on Circulation Design:
	i.	Does Circulation Design comply with IDG? If not, provide justification.
		-
7.	PI	ant Material
7.		ant Material All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan?
7.		All projects for new construction should include the planting of trees shrubs
7.	a.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan?
7.	a.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan? Yes No
7.	a.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan? Yes No Does the proposed planting plan meet AT/FP requirements defined in the IDG?
7.	a.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan? Yes No Does the proposed planting plan meet AT/FP requirements defined in the IDG? Yes No Does the proposed planting plan include plant material recommended in the
7.	a. c.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan? Yes No Does the proposed planting plan meet AT/FP requirements defined in the IDG? Yes No Does the proposed planting plan include plant material recommended in the selected Plant Palette Matrix included in the IDG?
7.	a. c.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan? Yes No Does the proposed planting plan meet AT/FP requirements defined in the IDG? Yes No Does the proposed planting plan include plant material recommended in the selected Plant Palette Matrix included in the IDG? Yes No
7.	a. c.	All projects for new construction should include the planting of trees shrubs and/or groundcover. Does the proposed planting plan include a project plan? Yes No Does the proposed planting plan meet AT/FP requirements defined in the IDG? Yes No Does the proposed planting plan include plant material recommended in the selected Plant Palette Matrix included in the IDG? Yes No

	f.	Does Landscape D	Design comply with IDG? If not, provide justification.
8.	Si	te Elements	
	a.	If the project incluguidelines in the IE	udes Site Furnishings, does the proposed plan follow the DG?
		Yes	No
	b.	If the project including the IDG?	les Signs, does the proposed plan meet the Signs standards
		Yes	No
	C.		udes exterior Lighting, does the proposed plan meet the idelines defined in the IDG.
		Yes	No
	d.	Will all power and	other distribution lines to be located underground?
		Yes	No
	e.	Will all substations	and transformers be designed as to be screened from view?
		Yes	No
	f.	Will all sewer and	water lines to be located underground?
		Yes	No
	g.	Are all storm drai IDG?	n systems designed to meet the guidelines defined in the
		Yes	No
	h.	Designer Commen	ts on Site Elements Design:
	i.	Does Site Element	s Design comply with IDG? If not, provide justification.

9. Antiterrorism (Security) a. Have installation boundary setbacks been included? No b. Have building setbacks from roads, parking, other buildings been included? No Yes c. Do site plans and landscape plans include the criteria outlined for AT/FP. No ____ d. Designer Comments on AT/FP Compliance: e. Does AT/FP Design comply with IDG? If not, provide justification. I hereby certify that the information provided is in compliance with the guidelines of the installation or applicable IDG, except as justified as noncompliance. **Designer of Record** Date Concur Deny , Explanation of denial is attached. **IDG Coordinator Date** Accept Deny , Explanation of denial is attached. Command Review (Where Applicable) **Date**



Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

B.1 The following checklist is optional and is designed for use on major projects.

PROJECT REQUIREMENTS CHECKLIST

For Completion by Installation Personnel for Use in Preparation of the Request for Proposals (RFP)

PROJECT	LOCATION	
DPW/DIS POC	PH#	
ADDRESS:		
E-MAIL		
DATE CHECKLIST COMPLETED	ВҮ	

When completing this form it is important to remember that it is the responsibility of the installation to resolve any conflicts between the different "users" (i.e. DPCA, DPW, etc.) about wants, needs, etc. The A/E that prepares the RFP must have the specific guidance contained herein to get you what you want. If there is information you wish to provide that is not specifically requested or you are unable to make your desires clear within the confines of this checklist, then add those comments at the end. Overseas installations consider compliance with Host Nation codes.

1.0 GENERAL INFORMATION

- A. Maps and plans available: (Provide copies with completed checklist)
 - Basic Information Maps (BIMS): (List Drawing No's)
 (Maps should be provided in Spatial Data Standards (SDS) compatible GIS format whenever possible.)

Site topography

Site Sanitary Sewer

Site Storm Sewer

Site Electrical

Site Water

Site Plan Extract - from RPMP (Future Development Site Plan)

Other

Project Location Plans

	Area N	Мар		
	a)	Site Map		
2.	Aerial	Photograph (Preferred to	Гороgraphic)
3.	USGS	Мар		
4.	Projec	t Siting Plan ((Proposed)	
5.	Enviro	nmental		
	a)	Jurisdiction	al wetlands d	esignation
	b)	Other histor	rical concerns	S:
				on/addition or prior design, provide
1. 2. 3. 4. 5. 6.	Basen Floor Structo Roof	nent ural	7. 8. 9. 10. 11.	Electrical Mechanical Plumbing Site Utilities Specifications Other
List all not fol Depar Gener	t all known applicable codes and regulations. Generally, NAF follow Federal or Military Specifications. partment of Defense (DoD) Governing criteria is UFC 1-200-0 neral Building Requirements, 31 July 2002		ns. criteria is <u>UFC 1-200-01, <i>Design:</i></u>	
State	and Cou	nty Codes:		
Enviro	vironmental Regulations:			
	3. 4. 5. Proje availa 1. 2. 3. 4. 5. 6. Appli List all not fol Depar Gener Local State a	a) 2. Aerial 3. USGS 4. Project 5. Enviro a) b) Project Build available info 1. Found 2. Basen 3. Floor 4. Struct 5. Roof 6. Elevat Applicable C List all known not follow Fed Department of General Building State and Coun	 Aerial Photograph (USGS Map Project Siting Plan (Environmental Jurisdiction Other histor Project Building Plans: available information and Foundation Basement Floor Structural Roof Elevations Applicable Codes and State all known applicable cont follow Federal or Military Department of Defense (Dogeneral Building Requirement Local Building Codes: 	a) Site Map 2. Aerial Photograph (Preferred to 7) 3. USGS Map 4. Project Siting Plan (Proposed) 5. Environmental a) Jurisdictional wetlands d b) Other historical concerns Project Building Plans: (If renovation available information and plans) 1. Foundation 7. 2. Basement 8. 3. Floor 9. 4. Structural 10. 5. Roof 11. 6. Elevations 12. Applicable Codes and Standards: List all known applicable codes and regulated the properties of

National Fire Protection Codes (NFPA), Military Handbook 1008C

Installation Regulations:

Cultural Regulations:

Other:

1.1 TEMPORARY FACILITIES AVAILABLE TO THE CONTRACTOR

A. Facilities available to contractor during construction:

1.	General Site Plan has been annotated to show limits of construction siteYes,No. If the contractor requires the use of additional area, he must obtain written approval from the Contracting Officer.
2.	Construction Office available:Yes,No.
3.	Covered materials storage available: _Yes,No.
4. NOTE: respons	Uncovered materials storage available: _Yes,No. Security of construction site and materials is the Contractor's sibility.
5. List any	Select fill borrow areas, spoil areas, sanitary fill and haul routes are shown on attached Installation map:Yes,No. y restrictions or notes on the use of those areas:
	Disposition of scrap and salvageable materials resulting from action is the responsibility of the contractor unless otherwise noted and .
Utilitie	es available to contractor during construction:
1.	Potable Water:Yes,No; Metering required:Yes,No. Cost \$
2.	Non-Potable Water (Irrigation, Machine Washing, etc): _Yes,No; Metering required:Yes,No. Cost \$per
3.	Electricity:Yes,No; Metering required:Yes,No. Cost \$
4.	Natural gas:Yes,No; Metering required:Yes,No. Cost \$

В.

1.2 DEMOLITION REQUIREMENTS

A. Facilities for demolition, relocation, or retention.

Provide description, size, type construction, and location of any existing facilities on the site that must be demolished, relocated or retained. Consider all structures, foundations, pavements, communications, and utilities (whether active or abandoned). Consider demolition hazards (i.e. lead, asbestos, etc.). Every effort shall be made by the installation to ensure compliance with the clean site policy. Provide the date when the clean site will be available. Recycle building demolition and debris material when ever possible.

1.3 PAVING REQUIRMENTS

A.	Parkii	Parking area (s) required:Yes,No.					
	1. Location and brief description:						
 Number of parking spaces for passenger vehicles: (including spaces for the handicapped). 							
	3. Type of pavement:						
	4.	Perimeter of parking area (s) to have concrete curb: _Yes,No.					
	5.	Striping of parking spaces required:Yes,No.					
		a) Width of stripes: b) Type of paint to be used:					
	6.	Special signage required:					
	7.	Concrete wheel stops required:Yes,No.					
	8.	Handicapped ramps/depressed curbs required:Yes,No.					
В.	Servi	ce road (s) required:Yes,No.					
	1.	Location:					
	2.	Type pavement:					
	3.	Concrete curbing required on both sides of road: _Yes,No.					
	4.	Minimum roadway width:Feet List any other special paving considerations or needs:					

	C.	Sidew	alks required:Yes,No.
		1.	Type of paving material:
		2.	Location:
		3.	Minimum width:
		4.	Minimum thickness shall be 4" with welded wire fabric.
	D.	Concr	ete dumpster pads required:Yes,No.
		1.	Number of pad (s):each. See note below.
		2.	Size of each pad:feet byfeet.
		3.	Provide bumper stops at rear of pads:Yes,No.
		4.	Provide architectural screening of pads:Yes,No. Type:
			Building orientation or design may eliminate need for screening. ing shall be in accordance with the Installation Design Guide (IDG).
1.4	UTILI	TIES S	ERVICE REQUIREMENTS
	A.	Electr Type:	ical Service: Meter required:Yes,No,
		1.	Type system to be installed:underground,aerial.
		2.	Type transformer (s) to be installed:Pole mtd.,Pad mtd.,
		NOTE:	Screen in accordance with Installation Design Guide (IDG).
		3.	Available Voltage:
		4.	Location of tie-in point:

В.	Water Service: Meter required:Yes,No.							
	1.	Size and location of tie-in point:						
	2.	Additional fire hydrant (s) required:						
C.	Sanita	rry Sewer Service: Size and location of tie-in point:						
D.	Storm	Storm Drainage:						
	1.	Design foryear occurrence.						
	2.	Type System:Surface,Underground						
	3.	Location of tie-in point for existing underground storm drainage system if incorporated in contractor design: See Site Plan.						
E.	Gas Service:Natural,Propane; Meter required:Yes,No.							
	1.	For Heating:Yes,No.						
	2.	For domestic hot water:Yes,No.						
	3.	For laundry dryers:Yes,No.						
	4.	For kitchen equipment:Yes,No.						
	_							

5. Size and location of tie-in point:

NOTE: Contractor (Offerors) shall be responsible to determine that all of the existing service utilities are of sufficient capacity to accommodate all of the design loads for this total facility. Should a Contractor (Offeror) determine that one or more of the existing service utilities are not adequate to accommodate the Contractor's (Offeror's) design loads for this total facility, then the Contractor (Offeror) shall submit with his initial and any subsequent proposal (Best & Final Offer), the requirements, design data and the price for increasing the capacity of each existing service utility system or for providing a new service utility system. Design loads for this facility shall be calculated in accordance with the criteria specified in this Request for Proposals (RFP), with the most stringent criteria governing. The responsibility for verification and field location of any and all information provided in the RFP and on any attached or enclosed drawings, or other documents shall be and is the responsibility of the Contractor (Offeror).

	1.	Point of contact for coordination:
		Tel Email
	2.	Road Closing:
		(a) Can both lanes be closed to traffic:Yes,No.
		(b) Maximum time road can be closed:(c) Can road be closed over a holiday or weekend: _Yes,No
	3.	Minimum notification time required for utilities outages and road closing:
		(a) Electric Power:working days.
		(b) Water:working days. (c) Gas:working days.
		(c) Gas:working days. (d) Steam:working days.
		(e) Central AC lines:working days.
		(f) Roads:working days.
		Enclose underground primary electrical service in concrete from the new
		ie-in points to the pad mounted transformer and/or mechanical room pane Provide one spare conduit for each service sealed at both ends. The
		t may be PVC provided it conforms to NFPA 70, current edition.
		If existing sidewalk, curbs, gutters or paving are disturbed or removed construction, the paving or concrete must be replaced by the Contractor.
	Notabl	At overseas installations, utility work must meet Host Nation codes. y, in Europe utilities connections shall comply with the supplier's local Contractors in Europe shall meet local utilities provider's conditions.
G.	Coor	dination and Notification Required for Railroad Track Work:
	1.	Point of contact for coordination:
		Tel Email
	2.	Road Closing:
		 (a) Can both lanes of traffic be closed:Yes,No. (b) Maximum time road can be closed: (c) Can road be closed over a holiday or weekend:Yes,No.
	3.	Railroad Track Closing:
		(a) Can track be closed to traffic:Yes,No.
		(b) Maximum time track can be closed:(c) Can track be closed over holiday of weekend:Yes,No.
	4.	Minimum notification time required for railroad track and road closing:
		(a) Railroad track: working days.(b) Road: working days.
	5.	Are used track components to be sorted and properly stored:Yes,No.

Coordination and Notification Required for Utilities Tie-in:

F.

		6.	Are samples, ultra-sonic inspections, temperature recordings, and certificates to be submitted for ties, rail track components, or ballast:Yes,No.				
		7.	Are RAILER markings and reporting required:Yes,No.				
		8.	Are there special radio or communication requirements:Yes,No.				
		disturb	If existing sidewalk, curbs, gutters, drainage, ballast, or paving aare ed or removed during construction, the paving, drainage, ballast, or te must be replaced by the Contractor.				
1.5		RCHITECTURAL AND STRUCTURAL BUILDING DESIGN EQUIRMENTS					
	A.		nic Design Zone: Structural design shall be in accordance codes specified in the RFP. wind speed:mph.				
	В.	Basic					
	C.	Grour	nd Snow Load:PSF (Plus code live load).				
	D.	Maxin	num Frost Penetration:inches.				
	E.	Heat Transmission: "U" Factors:					
		1.	Walls:				
		2.	Floor (slab-on-grade) at perimeter foundation wall:				
		3.	Floor over ventilated crawl spaces:				
		4.	Ceiling and/or roofs:				

	1.	Minimum pitch:
	2.	Type:
	3.	Scuppers and drains are required:Yes, (If a parapet type roof is proposed);No.
	4.	Gutters and downspouts:Yes,No, Type:
	5. draina	Drainage carry off:Splash Blocks; orUnderground age system (internal roof drains not permitted.)
	6.	Access to roof:
	requi	ES: Catwalks to and around rooftop HVAC units and other equipment are red (Cary tread or equal). Where possible, architectural screening of visible op equipment is required.
G.	Site	Conditions:
	1.	Environmental Assessment required:Yes,No.
	Comp	oletion Date:
	EIS F	Required: _Yes,No.
		oletion Date: ride copies of actions to date.)
	2.	Cultural Resources Compliance Completed:Yes,No.
	3. Topo	Site Conditions: graphical feature description:
	Confi	rm or identify subterranean hazards: Fill area
		Old foundations
		Unexploded ordnance
		Existing/abandoned utility line
		Tunnels/mines
		Other

F.

Roof:

	4.	Soil investigation data available:Yes,No. At project location:Yes,No.
		Other:
	5.	Soil bearing capacity:PFS. Actual test, Assumed
	neces	E: The successful Offeror shall be responsible for accomplishing additional ssary testing to verify soil characteristics at the site and design of the lation system to meet these requirements.
Н.	Build Other	ding Exterior: Brick:Yes,No.
	brick	E: Where brick is required, the exterior walls shall be finished with face with through body integral color and shall match the brick currently in place ilding No's
	areas	E: The final floor plan as designed by Offerors shall include all functional outlined subsequently in this section. Gross building areas shall not ed that specified in the RFP, including the mechanical room.
l.		ier Free Requirements: (Where applicable) as minimum, _ guest shall be barrier free.
	const accor	E: Where required, "Barrier Free Requirements" shall be designed and ructed to provide for the Physically Handicapped (interior and exterior), in dance with <u>Uniform Federal Accessibility Standards (UFAS)</u> and the icans with <u>Disabilities Act Accessibility Guidelines (ADAAG)</u> .
J.	Kick	plates required on interior wood doors: _Yes,No.
K.	Аррі	oximate total maximum occupancy:
	1.	Female: Adults Children
	2.	Male: Adults Children
	3.	TOTAL: Comments:

L.	Landscape Requirements:					
	List any special requirements:					
	NOTE: Offerers will provide a Landscaping Plan for the project area as required in the RFP. Surface area disturbance and tree removal will be minimized. Trees determined to be retained will be incorporated in the Landscaping Plan. Landscaping shall refer to the planting of trees, shrubs, plants, etc. and shall not be associated with establishment of turf as defined below. Trees, shrubs, plants, etc. shall be guaranteed for a period of one (1) year from time of planting.					
M.	Establishment of Turf:					
N.	Soil Poisoning: For termite protection is, is not required. NOTE: It will be the Contractor's responsibility to protect all existing turf and landscaping affected by the construction and to replace any turf or landscaping that has been damaged, for the term of the contract.					
Ο.	Paint Color:					
	1. List standard paint colors:					
Р.	Finishes:					
	List standard finishes:					
ELE	CTRICAL DESIGN REQUIREMENTS					
A.	Exterior lighting:					
	1. Parking area (s) lighting required:Yes,No. (a) Type of lighting: High Pressure Sodium Low Pressure Sodium Mercury Halogen Other					
	(b) Average Intensity:foot candles per sq. yd. with a					
	uniformity ratio of 4:1, Other (Avg. to min.)					

1.6

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Special mounting requirements:

(c)

(d)

Type pole: ______.

		(e)	Switchir		
			(1)	Type:	Manual
					Clock7 day7 day7 day
					Photo Electric
					Combination of above as indicated.
					Other
	2	E. de de de	Territoria de	U sala Casas	and a standard Market No.
	2.		_		g required:Yes,No.
		(a)	Type of	lighting:	: High Pressure Sodium
					Low Pressure Sodium Mercury
					Halogen
					Other
					ity:foot candles per sq. yd.
		. ,			on the building structure:Yes,No.
		(d)	Switchir		Manual
			(1)	rype.	Manual Clock7 day7 day
					Astronomical
					Photo Electric
					Combination of above as indicated.
					Other
			(2)	Location	n:
		(e)	Lighting	for plun	mbing and electrical chases required:
			Yes,	No.	
		NOTE:	All elect	rical wiri	ring (exterior and interior) shall be copper.
B.	Outsid	le weatl	her pro	of rece	eptacles: shall be installed every _ feet
	along t	he build	ling exte	erior. O	utside weather proof receptacles should be
	RCD (0	GFCI) p	rotected	d.	
					emergency light fixtures and exit lights in
					nents. Both shall have battery powered back-up,
	charge	level me	ters and	test but	ttons.
C.	Electro	omagne	tic Shi	elding:	
	1.	List any	electror	nagnetic	c shielding requirements.
D	Standl	ov/Pook	run Boy	vor Bo	au iromonto.
D.	Standi	Jyrback	up Fov	vei Re(quirements:
	1.	List and	standby	//backup	power requirements.
MECH	IANICA	AL/PLU	MBING	G DESI	IGN REQUIREMENTS
	115-41		. 4 - ام مد		
Α.	неatın	g aesig	ın data:		

1.

1.7

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Below is the outside dry bulb temperature that is equaled or exceeded 97 $\frac{1}{2}$ percent of the time, on the average, during the coldest 3 consecutive

			ns (Dec., Jan., and Feb.). Heating design shall be based on the dry emperature equaled or exceeded 97 ½ percent of the time.
		(a)	Dry bulb temperature:
		(b)	Wind velocity: Degree days:
	2.		or design temperatures: 68 degrees.
	۷.	IIILEIIC	or design temperatures. Too degrees.
B.	Air co	onditio	ning design data:
	1.	excee conse design	de dry bulb and wet bulb temperatures that are equaled or eded 2 ½ percent of the time, on the average, during the warmest 4 ecutive months (Jun. thru Sep.) are given below. Air conditioning n shall be based on the 2 ½ percent dry bulb, wet bulb erature.
		(a)	Dry bulb temperature:
		(b)	Wet bulb temperature:
	2.	Interio	or design temperatures:
		(a) (b)	Dry bulb temperature: Wet bulb temperature:
		(0)	wet build temperature.
C.			l air conditioning system: shall be designed to provide a nidity of 50% + 10% or -10%.
D.	exception designation designat	ot where n dry be signed cool with the condition of the econdition	Systems: Economy cycle. The air conditioning system e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during eather periods when the outside air temperature is by to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective.
D. E.	exception designation designat	ot where n dry be signed cool with the condition of the econdition	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during reather periods when the outside air temperature is by to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that
	except design be de those sufficithe ai areas use of install	ot where n dry be signed cool with the condition of the econdition of the condition of the econdition	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during teather periods when the outside air temperature is low to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective.
E.	except design be de those sufficithe ai areas use of install	ot where n dry be signed cool with the condition of the econdition	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during eather periods when the outside air temperature is by to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective. dity control override: _Yes, _No.
E.	except design be de those sufficithe air areas use of install	ot where n dry be esigned cool we iently lo r condit above f the ec II humi matic t Heatin	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during reather periods when the outside air temperature is but to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective. dity control override: _Yes, _No. imer controls required for:
E.	except design be de those sufficithe air areas use of lnstall Autor 1.	ot where n dry be esigned cool we iently lo r condit above f the ec II humi Matic t Heatin	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during reather periods when the outside air temperature is by to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective. dity control override: _Yes,No. imer controls required for: ng System:Yes,No.
E. F.	except design be de those sufficithe air areas use of lnstall Autor 1.	ot where n dry be esigned cool we iently lo r condit above f the ec II humi Matic t Heatin Air Co ng and	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during reather periods when the outside air temperature is by to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective. dity control override: _Yes,No. imer controls required for: ng System:Yes,No. onditioning System:Yes,No.
E. F.	except design be de those sufficithe air areas use of the land of	ot where n dry be esigned cool w iently lo r condit above f the ec II humi Heatin Air Co Self c	e room fan coil units are located, if located where the winter ulb temperature is 35 degrees F (97 ½% basis) or less, shall so that 100% outside air may be used in the system during eather periods when the outside air temperature is by to provide all the cooling needed, or reduce the load on tioning refrigeration equipment. Use of the economy cycle in 358 F shall be provided when it can be clearly shown that conomy cycle is cost effective. dity control override: _Yes,No. imer controls required for: ng System:Yes,No. I Air Conditioning Source:

Lov	v profile roof mounted HVAC units are permissible:Yes
	No.
Aut	omatic timer controls required for:
1.	Heating System:Yes,No.
2.	Air Conditioning System:Yes,No.
	iting fuel to be used: l:Natural gas,#2 Fuel oil,Propane.
	al fuel heating plant required:Yes,No. hary Fuel, Secondary Fuel
	rside air supply intake: to close when building is unoccupied: Yes,No.
	side air supply intake: to close when building is unoccupied:Yes,No.
٠.	e heating and air conditioning filters required: Permanent () Throw away
Cov	vers and locks: required on interior utilities controls: _Yes,No.
Plu	mbing Design Data:
1.	Exterior hose bibs: Minimum of each with 3/4" hose connection on building exterior.
	a) Frost protection required:Yes,No.
	b) Removable cutoff handles required:Yes,No.
2.	Interior hose bibs: See Functional Requirements
3.	
	Grease trap (s) required:Yes,No. Location (s):
4.	· · · · · · · · · · · · · · · · · · ·
4.5.	Location (s):

NOTE: All domestic water piping below grade shall be type K copper. All domestic water piping above grade shall be either type L copper in accordance with appropriate codes. All joints shall be soldered with 95/5 Tin/Antimony solder. The entire potable water system shall be lead free. Vent piping shall be schedule 40 galvanized steel or DWV weight copper.

7.	Provide a minimum of floor drain (s) in the laundry and mechanical room.
	Insulate all water pipes (hot & cold) above slab:Yes,No. The domestic hot and cold water piping below grade shall be kept to a m, and below the frost line if located outside the building perimeter.
9.	All domestic water pipes (hot & cold) shall be stenciled HW or CW. If pipes have been insulated then the pipe insulation shall also be stenciled.
10.	Provide grease interceptor:Yes,No. Location:
11.	Provide a water filtration system:Yes,No. Location: Type:
12.	Other plumbing considerations or requirements:

2.0 MINIMUM REQUIREMENTS FOR RESTROOMS

The following criteria are for minimal requirements only and may be superseded in quantities and/or finishes, providing that changes are an upgrading of the minimal requirements.

A. General: MALE and FEMALE

<u>ITEM</u>	<u>QUANTITY</u>	SPECIAL REQUIREMENTS
Lavatory Commode Faucets Expose pipes/valves Pipe penetrations Clean outs Mirrors		chrome finish. chrome finish. chrome finish escutcheons. chrome covers. mech. wall fasteners.
Floor drain Hose bib Wall finish Ceiling Floors		Lighting each restroom. under lavatory in each restroom. ceramic tile to 5' height moisture resistant DW. ceramic tile w/ceramic tile base, or quarry tile w/quarry tile base.
Toilet Partitions		Tile shall be MUD-SET. at all commodes and urinals. overhead braced w/door bumpers baked enamel w/skirts.
Skirts		18" stainless steel. watertight top edge.
Duplex receptacle Paper towel dispenser		GFCI type over vanity.
with trash receptacle Hand dryer Soap dispenser Toilet paper dispenser Ash receptacle		recessed in wall. over each lavatory. liquid pump. each commode stall. recessed, each restroom.
B. Specific: WOMEN	S	
Sanitary napkin disposal Sanitary napkin disposal	<u>—</u>	each commode stall. each restroom, coin operated.
C. Specific: MENS		
Urinal		porcelain wall mounted w/stainless steel part.

NOTE: Each restroom shall be designed and constructed with provisions for the handicapped and shall conform to the latest edition of the National Standard Plumbing Code and the Uniform Federal Accessibility Standards published in the Federal Register, August 7, 1984 (Current Edition).

3.0 FIRE PROTECTION REQUIREMENTS

Α.	Sprinl	kler system required:Yes,No.
	1.	Type system to be installed:Wet,Dry.
	2.	Complete coverage throughout the structure:Yes,No. If no, describe proposed system, layout, etc:
	3.	Exterior siamese connections are required.
В.	Detec	tion System:
	1.	Smoke detectors required:Yes,No. (Note: Radium type shall not be used).
	2.	Heat detectors required:Yes,No. (Rate of Rise Heat Detectors shall not be permitted.)
	building conjunctions with matthe time and sm shall all the ala transm handlin	When smoke and heat detectors are specific, full coverage of the g is required. In addition, heat detectors are also to be installed in ction with potential fire producing equipment such as furnaces, electric, etc. All detection devices shall be spaced and installed in accordance anufacturer's specifications and the latest edition of the NFPA in effect at e of installation. Heat detectors shall be set to trigger at 1358 F. The heat noke detectors shall be the combination type. The smoke detection unit arm locally and the heat detection unit shall alarm the facility and transmit rm to the fire department via a dedicated telephone line or appropriate ission media, i.e. radio transmission equipment. Automatic cutoff of air ag equipment is required when smoke or heat detectors, sprinkler systems, other automatic/manual fire alarm suppression system are activated.
C.	the lat require The pu fire de	ally Activated Fire Alarm System: installed in accordance with est edition of the NFPA in effect at the time of installation, is ed. Also provide manual pull stations at the ends of the building. ull stations shall be tied into a central panel box that will signal the partment via a dedicated telephone line or appropriate transmission i.e. radio transmission equipment.
D.		al fire suppression system (s) required: Yes,No. be type, location and justification:

	E.	Fire e	extingui	shers (manually operated) are required.
		1.	Gover	nment furnished:Yes,No.
		2.		ity and locations shall be based upon building design, NFPA, ements, and coordinated with Installation's fire department.
		3.	Reces	sed cabinet mounted:Yes,No.
		exting	uisher ca	ontractor (Offeror) shall furnish and install the recessed fire abinets. The cabinets shall be at a minimum 24 1½ tall, 7 deep w/glass doors.
	F.		terior fi book 10	nish materials shall be per NFPA standards and <u>Military</u> 008C.
	G.	Wateı pipe.	r suppl	y lines: for the sprinkler system shall be black steel
	Н.			ion's <u>standard</u> fire alarm panels shall be specified for tenance and sustainability.
	I.	Emer	gency l	Lighting Requirements:
4.0	SEC	JRITY	REQUI	REMENTS
	A.	Build	ing phy	rsical security:
		1.	Intrusi	on detection system required:Yes,No.
			(a)	Type system to be installed.
			(b)	Desired location of detectors:
			(c)	Exterior door alarm requirements:
			(d)	Exterior window alarm requirements:
		2.	Duress	s alarm system (s) required:Yes,No.
			(a)	Type system to be installed.
			(b)	Location (s):

B.	Safe (s) required:Yes,No.
	1.	Type and Number:
	2.	Size:
	3.	Location (s):
	4.	Secure to building:Yes,No, if yes, how:
	5.	Connect to main intrusion alarm system:Yes,No.
C.	master the tran the tran boxes a commu line will with the Provos	te transmission of the intrusion alarm system: to the installations system required:Yes,No. If yes, provide and install asmitter, all conduit, wiring, hookups from the intrusion alarm devices to asmitter, as well as all exterior underground conduit, required wiring, panel and all other ancillary equipment to bring the system to the existing unication transmission lines. The final connection at the communication to be made by the government. All systems proposed shall be compatible as existing system (s) installed at the installation. Point of coordination is the Marshall's Physical Security Officer. Specify the installation's standard on alarm system if required.
D.	Keyin	g requirements:
	1.	Rooms requiring card readers:
	2.	Rooms requiring cipher locks:
	3.	Rooms requiring individual keys:
	4.	Rooms requiring master keys:
	5.	Exterior keying requirements:
	6.	At least six (6) keys shall be provided for each lock. An additional twelve (12) sub master and six (6) master keys shall be provided.
	7.	The Offeror shall provide fifty (50) key blanks in addition to the above keying requirements.
E.	All ext	terior doors shall have unremovable hinge pins.
F.	Panic	hardware shall be in accordance with NFPA requirements.

G.	Harde	ened secure area (s) required:Yes,No
	1.	Location (s):
Н.	Fenci	ng Requirements:
	1.	Location:
	2.	Type and height:
	3.	Gate requirements:
I.	Antite	errorism Requirements:
	1.	Blast resistant windows:
	2.	Setbacks:
	3.	Barriers:
	4.	Others:
J.	Risk/	Threat Analysis Requirements:
	1.	Installation: Fill in unclassified pieces of risk/threat analysis.
	2.	
	3.	
СОМ	MUNIC	CATIONS REQUIREMENTS
A.	Interc Give a	com system required:Yes,No. brief description of the requirements for the system:

5.0

B.		/Paging system required:Yes,No. brief description of the requirements for the system:
C.	Teleph Locatio	none system required:Yes,No.
	Type:	
	hung. opanel. NOTE: for the perform require the local commun otherwine.	ephone required:Yes,No. If required, unit (s) will be wall Contractor shall run wire and conduit from pay phone outlets to the main Phones to be provided by Contractor. Contractor shall provide all conduit, wire, junction boxes and pull wires telephone system as required. Hookup of the telephone system will be ned by the Contractor. The Contractor shall coordinate all the telephone ments with the installation's Directorate of Public Works (DPW) office and all telephone company to determine requirements and provide space for nication equipment, panels, etc., in the mechanical room of where se designed. sic telephone system shall be the "Centrax System" as provided by:
	They sy	ystem functions shall include the following:
	1.	Direct in dialing, with restrictions on receiving collect calls.
	2.	Direct out dialing to local exchange number only.
	3.	Restrictions on placing chargeable calls outside the local exchange, except for calls charged to credit card or calls made with the charges reversed.
D.	Televi	sion system required:Yes,No.
	1.	The technical and installation requirements of the television system shall be coordinated with the local cable television provider.
	2.	Locations/number of internal outlets:
	3. Code.	Wiring and grounding shall be in accordance with the National Electric
	w Inhal illeting)	Notification System (Required per UFC 4-010-01, Standard 23: bited Buildings and for Existing Buildings (Primary Gathering), also for Existing Buildings, Recommended for all Inhabited

1. Type of Mass Notification System Required:

6.0 SIGNAGE REQUIREMENTS

(Excluding those required by NFPA and OSHA)

A. Interior signage:

B. Exterior Signage:

All exterior signage shall conform with the Installation Design Guide and Post Wide Paint/Exterior Finish Standards and color charts.

7.0 OTHER COMMENTS



Installations - Expand or modify entries as necessary for particulars within your geographical area or specific objectives of the Region, Command, or installation to meet Army standards.

C.1 The following checklist is optional and is designed for use on major projects.

INTERIOR DESIGN REVIEW CHECKLIST

1. INSTALLATION JOB DESCRIPTION			TE	
BUILDING No.				
	FURNISHI			
USING AGENCY COORDINATOR_				
DESIGNER		HONE#		
ITEM		YES	NO	N/A
2. Is the interior design integral to the	ne facility design?			
- Interior design is specified by the $\boldsymbol{\iota}$	ising agency.			
- Scope of work includes building re	lated interior design.			
- Scope of work includes furniture re	elated interior design.			
- Design incorporates Installation De	esign Guide criteria.			
- DPW representative was a member	er of Pre-selection and	or		
Selection Boards.				
Preselection member:				
Selection member:				
3. Was the designer provided interior	or design criteria?			
- Designed Guide for Interiors DG 1	110-3-122.			
- Design Guide for facility type desig	jned.			
- Installation Design Guide.				
4. The design has been reviewed an	d the following are ac	cceptable	?	
For building related interior desig	<u>n?</u>			
- Statement of Design Objective				
- Sketches				
- Color Board				
- Furniture Plan				

ITEM	YES	NO	N/A
- Exterior Materials and Finishes			
- Graphic Design			
- Hand Drawn Sketches			
- Digital image files (JPG, BMP, etc.)			
- 3D Model			
- Animation (AVI, etc.)			
- Interior Design Finish Schedule			
- Government Furnished Material List			
Items for Installation of Furniture and Accessories			
-Predesign Evaluation:			
- Maintenance Data			
- Floor Systems			
- Electrical Equipment and Task/Supplemental Lighting			
- Interior Element Specification			
- Cost Estimates:			
- Maintenance and Repair			
- New Work			
 Equipment-in-place and Furnishings 			
For furniture related interior design:			
- Typical furniture layout			
- Furnishing, fabrics and finishes board			
- Furnishings plan			
- Sketch perspectives			
- Colored rendering			
- Photographs			
- Catalog Cuts			
- Furnishing illustration sheets			
- Furnishing placement lists			
- Furnishing order forms			
- Furnishing contract specifications			

ITEM		YES	NO	N/A
5. Does the interior design add	dress the following fu	nctions?		
- Communications				
- Storage/filing				
- Display surfaces				
- Work surfaces				
- Conference Space(s)				
- Privacy				
- Lighting				
- Planting				
- Spatial considerations				
- Color/texture characteristics	3			
- Reflectance values				
- Acoustical considerations				
- Mechanical fixture placeme	nt			
- Electronic support				
- Furnishings/accessories				
- Work, training or paper flow	1			
- Hardware selection				
- Graphics/signage				
- Force Protection				
- Physical Security				
- Fire Safety				
6. Construction and installation	on phase			
- Positive first impression is o	created			
- Coordinated color scheme,				
exterior				
- Area & shape of spaces ma	atch function &			
support mission				
- Furnishings support function	n of space			
- Creative use of interior desi				

ITEM	YES	NO	N/A
- Retained designer to review and approve contractor			
submittals			
- Retained designer to oversee the installation of			
furnishings			
- Color boards were required and reviewed			
- Interior appearance policy is implemented			
Describe actions taken to ensure quality interior design responses on an attached sheet. Maintain a copy of this review checklist and all negative responses in the DPW	s interior	design	
I hereby certify that the information provided is in complia of the installation or applicable IDG, except as justified as		_	
Designer of Record	Date)	
Concur Deny, Explanation of denial i	s attach	ed.	
Master Planner	Date)	
Accept Deny , Explanation of denial i	s attach	ed.	
Command Review (Where Applicable)	Date)	



D.1 WHAT IS SUSTAINABLE DESIGN?

- D.1.1 Sustainable design and development is an integrated approach to planning, designing, building, operating, and maintaining facilities in a collaborative and holistic manner among all stakeholders (Fig. D.1). It is a systematic process and engineering practice with how to do it guidance, checklist, tools, and scoring systems. Sustainable design integrates the decision-making across the installation, basing every decision on the greatest long-term benefits and recognizing the interrelationship of installation actions with the natural environment. In the content of Army installations Sustainable Design is the design, construction, operation, and reuse/removal of the built environment in an environmentally and energy efficient manner (Fig. D.2). The basic objectives of sustainability are:
- D.1.1.1 Reduce the consumption of energy, land, materials, water, and other non-renewable resources.
- D.1.1.2 Minimize the waste of energy, land, materials, water, and other limited resources.
- D.1.1.3 Protect the natural environment that is the source of all resources.



Fig. D.1 – Su**ame**ble Site Design **Development**

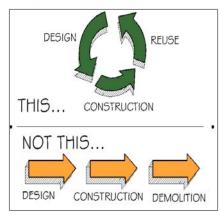


Fig. D.2 – Sustainable Design Process

- D.1.1.4 Create livable, healthy, and fiscally productive manmade environments for existing and future generations.
- D.1.2 Designing for sustainability ultimately increases quality of life through better resource protection and use. The design process must incorporate a change in mind-set that embraces less consumptive lifestyles. This mind-set change must include global interdependence, stewardship of the environment, social responsibility, and economic viability. The new design mind-set must change from the traditional approach to recognize the impacts of every design choice on natural and cultural resources, and on local, regional, and global environments.

D.2 SUSTAINABILITY AND THE FEDERAL GOVERNMENT

- D.2.1 The Federal Government has led the nation in the energy efficient, resource-conserving building design, construction, and operation. Executive Order (EO) 13123, "Greening the Government Through Efficient Energy Management," was issued June 3, 1999. This Order establishes that sustainable design principles shall be applied to all Federal projects in order to reduce pollution and other environmental costs associated with facility construction, operation, and eventual decommissioning. The principles of sustainable design for Federal Agencies established by EO 13123 include siting, design, and construction, as follows (Fig. D.3):
- D.2.1.1 Site Optimize site potential.
- D.2.1.2 Energy Minimize nonrenewable energy consumption.
- D.2.1.3 Materials Use environmentally preferable products.
- D.2.1.4 Water Protect and conserve water.
- D.2.1.5 Indoor Environmental Quality Enhance indoor environmental quality.
- D.2.1.6 Facility Delivery Holistic delivery of facility.
- D.2.1.7 O&M Optimize operational and maintenance practices.



Fig. D.3 – Sustainable Design Principles

D.2.1.8 Future Missions – Functional life of facility and support systems.

D.3 SPIRIT

D.3.1 The U.S. Army Corps of Engineers (USACE) has developed a checklist for sustainability to be utilized by design professionals in all new construction, additions, or renovation of Army facilities. This checklist is the "Sustainable Project Rating Tool (SPiRiT)". The SPiRiT document was derived from the U.S. Green Building Council LEED 2.0 (Leadership in Energy and Environmental Design) Green Building Rating System.

D.3.2 SPiRiT is a rating tool that offers a checklist, strategies and scores to provide sustainable facilities to the Army. SPiRiT allows environmentally responsible practices to be integrated into the process of facility delivery form the very beginning of the project. By using a "whole building" perspective, the SPiRiT rating tool (See Appendix E, SPiRiT Checklist) helps in preserving the environment and improving facility life-cycle management. SPiRiT is based on accepted energy and environmental principles.

D.3.3 The SPiRiT document includes eight (8) categories of design concerns (Fig. E.4). A facility points summary is included at the end of the document. Points are achieved based upon the sustainable design issues addressed in the building, site and infrastructure design. The design is certified by the designer and design review personnel based upon the following certification levels.

D.3.3.2 SPiRiT Silver 35 to 49 Points

D.3.3.3 SPiRiT Gold 50 to 74 Points

D.3.3.4 SPiRiT Platinum 75 to 100 Points

D.3.3.1 SPiRiT Bronze 25 to 34 Points

D.4 **ARMY STANDARDS**

D.4.1 The cited Army Standards shall be met.

Sustainable Sites...20 pts. max.

Water Efficiency 5 pts. max.

Energy / Atmosphere 28 pts. max.

Materials / Resources 13 pts. max.

Indoor Enrichment 17 pts. max.

Facility Del Prices..... 7 pts. max.

Fig. D.4 - SPiRiT Checklist Points Summary

28 Apr 03 Page D- The SPiRiT rating of "Silver" is the standard for all FY06 MILCON vertical construction projects currently under design (as of March 18 2003). For all other FY06 and future-year MILCON projects the minimum SPiRiT rating requirement is "Gold". See <u>Assistant</u> <u>Secretary of the Army memorandum Subject:</u> <u>Sustainable Design and Development Requirements,</u> <u>dated 18 March 2003</u>.

D.5 REFERENCES

D.1.5 The following references are provided for guidance.

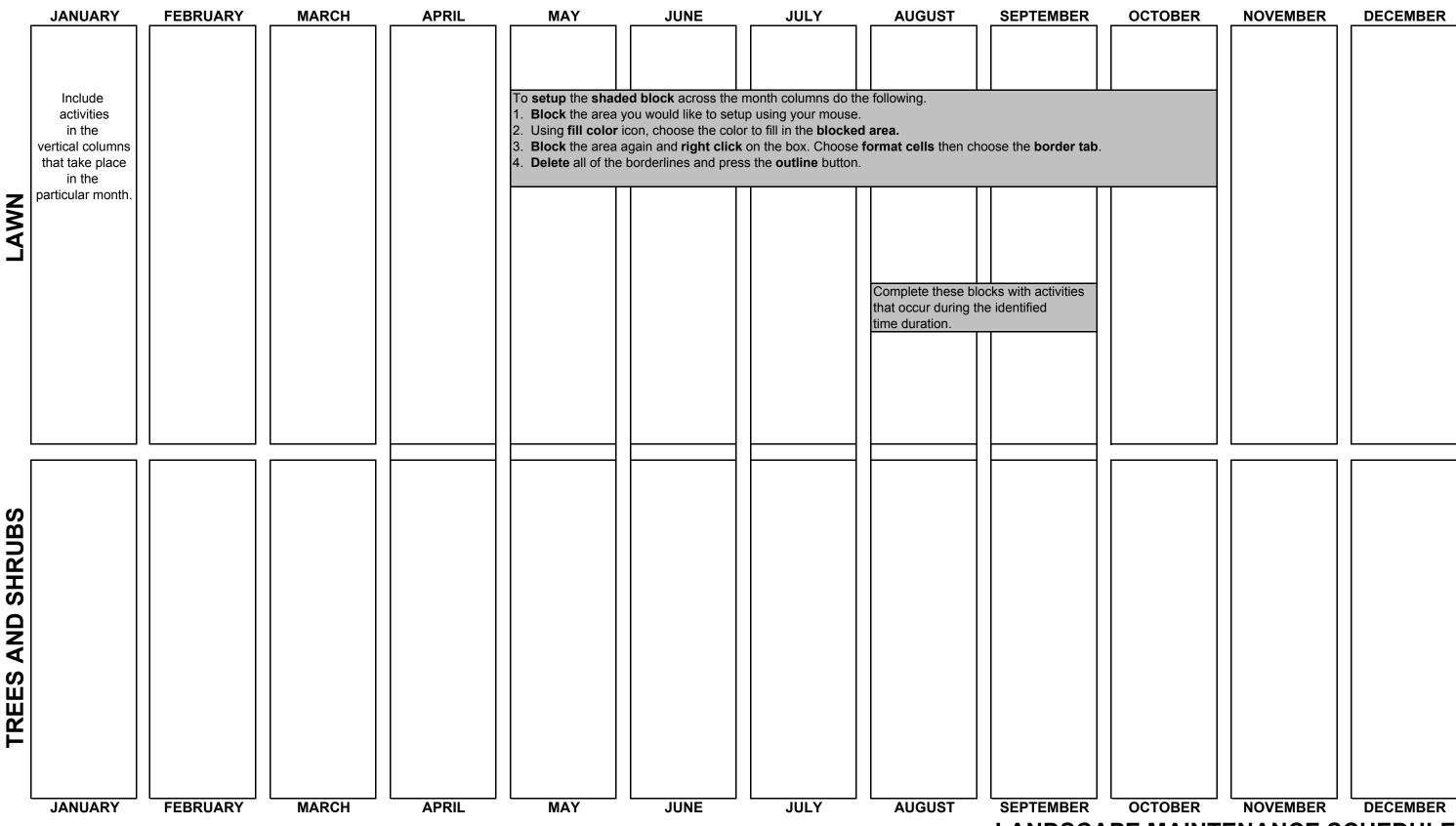
- Assistant Chief of Staff for Installation Management memorandum Subject: Sustainable Project Rating Tool, dated 21 December 2002
- Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), <u>Sustainable Design</u> and <u>Development Website</u>
- Air Force Sustainable Facilities Guide
- Whole Building Design Guide

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Appendix E	28-Apr-03				
Tamplete !!	ne l				
Templete II					
SUSTAINA	BILITY PROJECT RATING TOOL (SPIRIT)			 	
Facility Poin	ts Summary	·			Maximum Points
1.0			Score	_	
	Sustainable Sites (S)		Score	0	Max 20
1.R1 * 1.C1 *	Erosion/Sedimentation/Water Quality Control Site Selection				[Required]
1.C2 *	Installation/Base Redevelopment				2
1.C3 *	Brownfield Redevelopment				1
1.C4 *	Alternative Transportation				4
1.C5 * 1.C6 *	Reduced Site Disturbance				2
1.C7	Stormwater Management Landscape & Ext. Design to Reduce Heat Islands				2
1.C8 *	Light Pollution Reduction	_			1
1.C9 **	Optimize Site Features				1
1.C10 **	Facility Impact				2
1.C11 **	Site Ecology				1
2.0	Water Efficiency (W)		Score	0	Max 5
2.C1	Water Efficient Landscaping				2
2.C2	Innovative Wastewater Technologies				1
2.C3 *	Water Use Reduction				2
3.0	Energy and Atmosphere (E)		Score	 0	Max 28
3.R1 *	Fundamental Building Systems Commissioning				[Required]
3.R2 * 3.R3	Minimum Energy Performance CFC Reduction in HVAC&R Equipment				[Required]
3.C1 *	Optimize Energy Performance				20
3.C2 *	Renewable Energy	-			4
3.C3	Additional Commissioning				1
3.C5 *	Measurement and Verification				1
3.C6 *	Green Power Distributed Generation				1
3.C7 **		-			
1.0	Materials and Resources (M)		Score	0	Max 13
I.R1 * I.C1 *	Storage & Collection of Recyclables Building Reuse				[Required]
4.C2 *	Construction Waste Management	-			2
4.C3	Resource Reuse				2
4.C4 *	Recycled Content				2
4.C5	Local/Regional Materials				2
1.C6 1.C7	Rapidly Renewable Materials Certified Wood				1
5.0	Indoor Environmental Quality (IEQ)		Score	 0	Max 17
5.R1 *	Minimum IAQ Performance				[Required]
5.R2 5.C1 *	Environmental Tobacco Smoke (ETS) Control IAQ Carbon Dioxide (CO2) Monitoring				[Required]
5.C2	Increase Ventilation Effectiveness	-			1
5.C3	Construction IAQ Management Plan				2
					4
5.C4	Low-Emitting Materials				7
5.C4 5.C5 *	Indoor Chemical and Pollutant Source Control				1
5.C4 5.C5 * 5.C6	Indoor Chemical and Pollutant Source Control Controllability of Systems				2
5.C4 5.C5 * 5.C6 5.C7	Indoor Chemical and Pollutant Source Control				
5.C4 5.C5 * 5.C6 5.C7	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control				2 2
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views				2 2 2
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control		Score	0	2 2 2 1
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan		Score	0	2 2 2 1 1
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.0 6.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P)		Score	0	2 2 2 1 1 1 Max 7
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.0 6.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility				2 2 2 1 1 1 1 Max 7 7 Max 6
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.0 6.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission				2 2 2 1 1 1 Max 7 7 Max 6 3
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.0 6.C1 ** 7.0	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention		Score	0	2 2 2 1 1 1 1 Max 7 7 Max 6 3 3
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.C1 ** 7.C2 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention Future Missions				2 2 2 1 1 1 1 Max 7 7 Max 6 3 3 3 Max 4
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 7.C1 ** 7.C2 ** 3.0 8.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention		Score	0	2 2 2 1 1 1 1 Max 7 7 Max 6 3 3 3 Max 4 2 2
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention Future Missions Functional Life of Facility and Supporting Systems		Score	0	2 2 2 1 1 1 1 Max 7 7 7 Max 6 3 3 3 Max 4 2 2 2
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.C1 ** 7.O 7.C1 ** 7.C2 ** 8.O 8.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention Future Missions Functional Life of Facility and Supporting Systems Adaptation, Renewal and Future Uses	Tota	Score	0	2 2 2 1 1 1 1 Max 7 7 Max 6 3 3 3 Max 4 2 2
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.C1 ** 7.O 7.C1 ** 7.C2 ** 8.O 8.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention Future Missions Functional Life of Facility and Supporting Systems Adaptation, Renewal and Future Uses	Tota	Score	0	2 2 1 1 1 1 Max 7 7 Max 6 3 3 3 Max 4 2 2 2 Max 100
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 6.C1 ** 7.O 7.C1 ** 7.C2 ** 8.O 8.C1 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention Future Missions Functional Life of Facility and Supporting Systems Adaptation, Renewal and Future Uses Die Project Certification Levels Army Standard - SPIRIT Bronze	Tota	Score	0 0 0	2 2 1 1 1 1 Max 7 7 Max 6 3 3 3 Max 4 2 2 Max 100
5.C4 5.C5 * 5.C6 5.C7 5.C8 5.C9 ** 5.C10 ** 5.C10 ** 7.0 7.C1 ** 7.0 8.C1 ** 8.C2 **	Indoor Chemical and Pollutant Source Control Controllability of Systems Thermal Comfort Daylight and Views Acoustic Environment /Noise Control Facility In-Use IAQ Management Plan Facility Delivery Process (P) Holistic Delivery of Facility Current Mission Operation and Maintenance Soldier and Workforce Productivity and Retention Future Missions Functional Life of Facility and Supporting Systems Adaptation, Renewal and Future Uses	Tota	Score	0 0 0 25 to 3 35 to 4	2 2 1 1 1 1 Max 7 7 Max 6 3 3 3 Max 4 2 2 2 Max 100



LANDSCAPE MAINTENANCE SCHEDULE

Name of Installation

Appendix G PRIORITIZED IMPROVEMENTS PROJECTS LIST

		Prioriti	ized Improve	ments Proje	cts List					
INSTALLATION:			PRESS "ENTER" TO INSERT A NEW LINE.							
INSTALLATION.										
		DPW o	r EQUIVALENT							
NAME:		PHONE:		ADDRESS						
		EMAIL:								
					_					
PRI- ORITY NO.	PROJECT TITL	.E	RECOMMENDED FUNDING SOURCE	ALTERNATIVE FUNDING SOURCE	COST ESTIMATE	IDG PARA NO.	POINT OF CONTACT			
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										



INSTALLATION: DEVELOP A SELF-HELP PROJECTS CHECKLIST TO ACCORD WITH THE DEGREE OF LATITUDE GIVEN TO SELF-HELP PROJECTS AT YOUR INSTALLATION.

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INSTALLATION: DEVELOP PER GUIDANCE IN SECTION 8, PARAGRAPH 8.13, SUB-PARAGRAPH 8.13.10 (INTERIOR DESIGN).

Paragraph 8.13.10

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INSTALLATION: DEVELOP PER GUIDANCE IN SECTION 8, PARAGRAPH 8.13, SUB-PARAGRAPH 8.13.13 (INTERIOR DESIGN).

Paragraph 8.13.13

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Appendix K EXTERIOR MATERIALS CHARTS

EXTERIOR MATERIALS CHART

VISUAL ZONE: Installation: Enter Name of Visual Zone

	Building Design Element	Permitted Material Type	Notes (Hyperlinked)
ls	Base (primary) material	Installation: Enter material type, modify form as necessary	
Walls	Secondary material		
Roof	Sloped areas		
	"Flat" areas		
	Doors		
Fenestration	Storm Doors		
Fenest	Door & Window Frames		
	Storm window or sash		
	Window		
	Fascia		
	Soffit		
ø	Gutters and D.S.		
Trim Items	Awnings and canopies		
Tri	Stair or balcony railings, balusters and related trim/accessories		
	Handrails		

	Building Design Element	Permitted Material Type	Notes
su	Fire Escapes		
Trim Items	Grilles and louvers		
Tri	Coping		
	Roof ventilators		
Related Site Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures		
Re St	Porch crawl space enclosure		

	NOTES				
Note 1	Installation: Enter notes where applicable				
Note 2	Installation: Tab to expand note listings				
Note 3					

Appendix L EXTERIOR COLOR CHARTS



<u>Page</u>	<u>Area</u>	<u>Page</u>	<u>Area</u>
L3-4	Southeast USA	L13-14	Northwest USA
L5-6	Northeast USA	L15-16	Pacific Ocean
L 7-8	Central Atlantic USA	L17-18	Alaska
L9-10	Southwest USA	L19-20	Far East (Japan & Korea)
L11-12	Plains USA	L21-22	Europe

L.1 Colors schemes and building materials are critical design elements in relating adjacent buildings and creating a compatible visual environment within an installation. This section identifies the Army standard palate of colors that will unify installations. A sufficient color palate range is provided to allow for variety. General direction on the use and application of materials and their colors follows --

- Avoid cluttered, cosmetic application of a number of different materials on a façade. Use materials consistently on all facades of a building.
- Select materials based upon their appropriateness to the building type, climatic conditions, and prevailing architectural design and landscape character of the installation.
- Utilize materials distinctive to an architectural character worthy of merit consistently throughout an installation.
- Relate buildings with compatible material and similar colors.
- Select colors for material from the Army color standard on the basis of the desired appearance, function, attractiveness of the building, and its compatibility with adjacent building colors.
- Limit exterior building colors to the Army established color palette. This
 provides each area a coordinated palette of similar colors that are
 subdued and harmonious. Avoid strong, loud colors.

EXTERIOR COLOR CHART Southeast USA

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked)
s	Base (primary) material	Red Brick, or limestone neutral gray tones		
Walls	Secondary	Tan 23578, or 23717		
	material	Gray 26492 or White 20372		
		Metal Green 24373 or Terracotta		
Roof	Sloped areas	Clay Terracotta		
Ro		Fiberglass Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
_		Steel: Dark Brown 5225N		
ratior	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Dark Brown 5225N		

	Building Design Element		Required Color Standard	Color Sample	Notes
Su	2	Fire Escapes	Chocolate		
Trim Items		Grilles and louvers	Brown 20313		
Ē		Coping	Brown 20313		
		Roof ventilators	Blend to match roof		
Related Site	Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Si	Porch crawl space enclosure	White		

	NOTES					
Note 1	Installation: Enter notes where applicable. Tab to expand note listings					
Note 3	Identify type, color, and texture of local brick and stone, to include mortar color and joint style					

EXTERIOR COLOR CHART Northeast USA

Gray cool tone colors have been omitted from this area color palate. The cool grays tend to "wash out" and appear "muddy" in the cloudy, overcast, or foggy weather conditions that are frequent.

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked
-	Base (primary) material	Red or Brown Brick		
Walls	Secondary	Quarry stone tan or beige tones, or limestone neutral tones		
	material	Almond 5910W, Tan 23717, or Mocha 20372		
		Metal Bronze or Green 24373		
Roof	Sloped areas	Clay Terracotta		
Ro		Fiberglass Shingle Dark Gray or White		
	"Flat" areas	White or buff		
	Daora	Wood: White 5770W		
	Doors	Steel: Dark Brown 5225N		
Fenestration	Storm Doors	White		
enest	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Item	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Dark Brown 5225N		

	Building Design Element		Required Color Standard	Color Sample	Notes
Su	2	Fire Escapes	Chocolate		
Trim Items		Grilles and louvers	Brown 20313		
Ē		Coping	Brown 20313		
		Roof ventilators	Blend to match roof		
Related Site	Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Si	Porch crawl space enclosure	White		

	NOTES				
Note 1	Installation: Enter notes where applicable				
Note 2	Installation: Tab to expand note listings				
Note 3	Identify type, color and texture of local brick, stone, to include mortar color and joint style				

EXTERIOR COLOR CHART

Central Atlantic USA

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked)
S	Base (primary) material	Red Brick or limestone neutral gray tones		
Walls	Secondary	Almond 5910W or Tan 23717		
	material	Mocha 20372 or Gray 25526		
		Metal Green 24373		
Roof	Sloped areas	Clay Terracotta		
R ₀		Fiberglass Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
	Doors	Steel: Dark Brown 5225N		
ratior	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
tems	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Dark Brown 5225N		

	Building Design Element		Required Color Standard	Color Sample	Notes
Su	2	Fire Escapes	Chocolate		
Trim Items		Grilles and louvers	Brown 20313		
Ē		Coping	Brown 20313		
		Roof ventilators	Blend to match roof		
Related Site	Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Si	Porch crawl space enclosure	White		

	NOTES				
Note 1	Installation: Enter notes where applicable				
Note 2	Installation: Tab to expand note listings				
Note 3	Identify type, color and texture of local brick, stone, to include mortar color and joint style				

EXTERIOR COLOR CHART

Southwest USA

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked)
8	Base (primary) material	Tan Brick or native stone		
Walls	Secondary	Almond 5910W or Tan 23717		
	material	Mocha 20372		
		Metal Bronze or Terracotta		
Roof	Sloped areas	Clay Terracotta		
Ro		Fiberglass Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
		Steel: Dark Brown 5225N		
ration	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Brown 20313		

	Building Design Element	Required Color Standard	Color Sample	Notes
ns	Fire Escapes	Chocolate		
Trim Items	Grilles and louvers	Brown 20313		
Tri	Coping	Brown 20313		
	Roof ventilators	Blend to match roof		
Related Site	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Porch crawl space enclosure	White		

	NOTES					
Note 1	Installation: Enter notes where applicable					
Note 2	Installation: Tab to expand note listings					
Note 3	Identify type, color and texture of local brick, stone, to include mortar color and joint style					

EXTERIOR COLOR CHART Plains USA

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked
S	Base (primary) material	Red Brick, or limestone neutral gray tones		
Walls	Secondary	Tan 23578, or 23717		
	material	Gray 26492 or White 20372		
		Metal Bronze or Terracotta		
Roof	Sloped areas	Clay Terracotta		
R		Fiberglass Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
		Steel: Dark Brown 5225N		
ratior	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Dark Brown 5225N		

	Building Design Element	Required Color Standard	Color Sample	Notes
ns	Fire Escapes	Chocolate		
Trim Items	Grilles and louvers	Brown 20313		
Tri	Coping	Brown 20313		
	Roof ventilators	Blend to match roof		
Related Site	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Porch crawl space enclosure	White		

	NOTES				
Note 1	Installation: Enter notes where applicable. Tab to expand note listings				
Note 3	Identify type, color, and texture of local brick and stone, to include mortar color and joint style				

EXTERIOR COLOR CHART Northwest USA

Gray cool tone colors have been omitted from this area color palate. The cool grays tend to "wash out" and appear "muddy" in the cloudy, overcast, or foggy weather conditions that are frequent.

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked
×	Base (primary) material	Brown Brick or native stone		
Walls	Secondary	Almond 5910W or Tan 23717		
	material	Mocha 20372		
		Metal Green 24373		
Roof	Sloped areas	Clay Terracotta		
Ro		Fiberglass Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
		Steel: Dark Brown 5225N		
ration	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Brown 20313		

	Building Design Element		Required Color Standard	Color Sample	Notes
Su	2	Fire Escapes	Chocolate		
Trim Items		Grilles and louvers	Brown 20313		
Ē		Coping	Brown 20313		
		Roof ventilators	Blend to match roof		
Related Site	Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Str	Porch crawl space enclosure	White		

	NOTES					
Note 1	Installation: Enter notes where applicable					
Note 2	Installation: Tab to expand note listings					
Note 3	Identify type, color and texture of local brick, stone, to include mortar color and joint style					

EXTERIOR COLOR CHART Pacific Ocean

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked)
s	Base (primary) material	Red Brick		
Walls	Secondary	Almond 5910W or Tan 23717		
	material	Pastel Sky		
		Metal Cream		
Jo	Sloped areas	Tile Tan		
Roof		Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
		Steel: Dark Brown 5225N		
ration	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Item	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Brown 20313		

	Building Design Element		Required Color Standard	Color Sample	Notes
Su	2	Fire Escapes	Chocolate		
Trim Items		Grilles and louvers	Brown 20313		
Ē		Coping	Brown 20313		
		Roof ventilators	Blend to match roof		
Related Site	Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	Str	Porch crawl space enclosure	White		

	NOTES
Note 1	Installation: Enter notes where applicable
Note 2	Installation: Tab to expand note listings
Note 3	Identify type, color and texture of local brick, stone, to include mortar color and joint style

EXTERIOR COLOR CHART Alaska

Gray cool tone colors have been omitted from this area color palate. The cool grays tend to "wash out" and appear "muddy" in the cloudy, overcast, or foggy weather conditions that are frequent.

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked)
S	Base (primary) material	Dustry Trail ICI #425		
Walls	Secondary	Sand Motif ICI #422		
	material	Bisque ICI #436		
Roof	Sloped areas			
	"Flat" areas	Ivory		
	Doors	Wood: Salsa ICI #123		
	Doors	Steel Liberty Red ICI 159		
Fenestration	Storm Doors			
Fenest	Door & Window Frames			
	Storm window or sash			
	Window	White		
	Fascia	White		
	Soffit	White		
S.	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
Tri	Stair or balcony railings, balusters and related trim/accessories	Chocolate		
	Handrails	Dark brown 5225N		

	Building Design Element	Required Color Standard	Color Sample	Notes
us	Fire Escapes	Chocolate		
Trim Items	Grilles and louvers	Brown 20313		
Tri	Coping	Brown 20313		
	Roof ventilators	Blend to match roof		
Related Site	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Chocolate		
Re	Porch crawl space enclosure	White		

	NOTES
Note 1	Installation: Enter notes where applicable Tab to expand note listings

EXTERIOR COLOR CHART

Far East (Japan and Korea)

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked
×	Base (primary) material	Red Brick		
Walls	Secondary material	Almond 5910W or Tan 23717		
		Mocha 20372		
		Metal Green 24373		
Roof	Sloped areas	Clay Terracotta		
Ro		Fiberglass Shingle Gray/White		
	"Flat" areas	White		
	Doors	Wood: White 5770W		
		Steel: Dark Brown 5225N		
ratior	Storm Doors	White		
Fenestration	Door & Window Frames	Brown 20313		
	Storm window or sash	White		
	Window	White		
	Fascia	White		
	Soffit	White		
ems	Gutters and D.S.	Brown 20313		
Trim Items	Awnings and canopies	23717		
	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Brown 20313		

	Building Design Element		Required Color Standard	Color Sample	Notes
Su		Fire Escapes	Chocolate		
Trim Items		Grilles and louvers	Brown 20313		
Ē		Coping	Brown 20313		
		Roof ventilators	Blend to match roof		
Related Site	Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re	S	Porch crawl space enclosure	White		

	NOTES
Note 1	Installation: Enter notes where applicable
Note 2	Installation: Tab to expand note listings
Note 3	Identify type, color and texture of local brick, stone, to include mortar color and joint style

EXTERIOR COLOR CHART Europe

	Building Design Element	Required Color Standard	Color Sample	Notes (Hyperlinked)
	Base (primary) material	New walls shall be constructed of sand limestone using dimensions according to heating calculations. New and existing walls (to be covered) shall be of plaster carrying construction, mesaleithe or equal #31643.	No. 31643	
Walls		Cementious materials consist of mineral stucco, synthetic stucco or quick-mix, or concrete. The mineral stucco and synthetic stucco and concrete colors shall be Light Beige, Color 12A/6.		
	Secondary material	The poured-in-place concrete with paint finished shall be the same as concrete color. Tilt-up concrete shall have a paint finish. Pre-cast concrete shall have an integral color or paint		
		finish. Metal siding where exposed, shall be painted with Federal Standard 595a No. 31643.		
	Sloped areas	Metal Green 24373		
Roof		Clay Tile		
 ~		Concrete roof tile manufactured by "BRAAS" or equal		
	"Flat" areas	White		
	Doors	Altweiss, Color 0029		
	Doors	Steel: Dark Brown 5225N		
estration	Window frame or sash	Altweiss, Color 0029		
Fenestr	Fascia	White		
	Soffit	White		
	Gutters and D.S.	Altweiss, Color 0029		
S	Awnings and canopies	23717		
Trim Items	Stair or balcony railings, balusters and related trim	Chocolate		
	Handrails	Brown 20313		

-	Building Design Element	Required Color Standard	Color Sample	Notes
su	Fire Escapes	Chocolate		
Trim Items	Grilles and louvers	Brown 20313		
Tri	Coping	Brown 20313		
	Roof ventilators	Blend to match roof		
Related Site Structures	Courtyard enclosure walls, retaining walls, fences, dumpster enclosures	Red Brick or Chocolate		
Re S1	Porch crawl space enclosure	White		

	NOTES	
Note 1	Installation: Enter notes where applicable. Tab to expand note listings	
Note 2	Identify type, color and texture of local masonry stone, to include mortar color and joint style	

ROOFS

Roofs should be red, and be of the following material:

- Fiberglass face room shingles manufactured by "Eternit" or equal,
- Concrete roof tile manufactured by "BRAAS" or equal, or
- Clay roof tile or equal.

DOORS, WINDOWS AND ACCENTS

Doors and accent elements such as windows, gutters, and pilasters shall be painted Altweiss, Color 0029.

Appendix M HISTORIC PRESERVATION GUIDELINES

Installation: Expand or modify entries as necessary for particulars within regional area or specific objectives of the Army, Region, Command, or installation.

M.1 INTRODUCTION

- M.1.1 Military Planning and Design.
- M.1.1.1 Most of the history and literature about the military does not deal with the topic of Army facility planning and design processes. However, to plan for the future development of an Army installation, it is necessary to go back and attempt to understand what has taken place there in the past.
- M.1.1.2 In the development of its policies, the Army had to deal with the question of how buildings relate to one another by both use and layout and by architectural characteristics. At least in its earliest phases, this development was not always a conscious formulation of policy; so much as it was the immediate response to a given situation. Over the years, there have been different forces affecting the process of military planning in this country. As illustrated by the various districts and zones on *[Installation Name]*.

Installations: Insert pictures with captions as appropriate - Fig. D.1 etc.

M.2 HISTORIC PRESERVATION REGULATIONS

M.2.1 The Army's management of historic properties is pursuant to the duties and responsibilities established by Congress under the National Historic Preservation Act (NHPA) of 1966 and its subsequent amendments. This act committed Federal agencies to a program of identification and protection of historic properties on the land they own. The NHPA established the Advisory Council on Historic Preservation (ACHP) to "advise the President and the Congress on matters relating to historic preservation; [and to] recommend measures to coordinate activities of Federal, State, and local agencies." (16 U.S.C. 470j)

M.2.2 The NHPA also created the National Register of Historic Places to designate publicly or privately owned resources and to encourage identification and planning which promotes the compatible use of these properties. The National Register is the official listing of the nation's historic and cultural resources considered worthy of preservation. It includes "districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering, and culture." (16 U.S.C. 470a)

M.2.3 The NHPA has established a number of procedural steps, which Federal agencies must meet in order to comply with the intent of the law. This is set forth in Section 106 of the NHPA which requires that: "the head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, buildings, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment with regard to such undertaking." (16 U.S.C. 470f)

M.2.4 Pursuant to its authority in overseeing the nation's historic preservation programs, the Department of the

Interior has developed regulations which amount to a set of acceptable standards for work on properties listed in or eligible for listing in the National Register. The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation act as a guide to the Advisory Council and State Historic Preservation Offices in their procedural review of Federal undertakings. These guidelines should also act as standards for all Federal agencies as they commence planning for any undertaking, which has the potential to trigger Section 106 review, thus assuring that all proposed projects would meet Advisory Council and NHPA requirements.

M.2.5 Federal agencies must comply with the NHPA by following a series of steps detailed in 36 CFR 800. The Army further explains its policies and procedures in Army Regulation (AR) 200-4, Cultural Resources Management and Department of the Army Pamphlet (DA PAM) 200-4, Cultural Resources Management. This Installation Design Guideline is intended to be used in conjunction with the above regulations as well as with the [Installation Name] Integrated Cultural Resources Management Plan (ICRMP).

M.2.6 The recently developed Army Alternate Procedures (AAP) provide a new method for managing historic properties. The AAP, a streamlined approach to Section 106 of the National Historic Preservation Act, now allows installations to manage historic properties programmatically rather than on a project-by-project review. These procedures also enable installations to leverage existing Army and DoD program requirements while internally managing historic properties in a more efficient and cost effective manner.

M.3 STANDARDS AND GUIDLELINES

M.3.1 Rehabilitation of Historic Properties. Design and renovation guidelines for historic districts, such as those within the [Installation Name] are of necessity much broader than design guidelines for single structures. Such guidelines must not only address the, appropriate architectural image (style, material, etc.) for proposed new buildings, they must also address how a proposed action



Fig. M.X - Many Army Properties Are Listed on the National Register of Historical Properties

within the historic district will impact its integrity. By this it is meant, how any new work will affect the original design intent of the given historic area.

M.3.1.1 New work should not:

M.3.1.1.2 Conflict with the existing architectural character. For example, it should not:

- Be larger in mass or taller than the existing historic structures.
- Be of a color or material that conflicts visually with the predominate historic material used in the area.
- Destroy the historic fabric of any existing structures or landscape features, which are essential character defining elements within the district.
- Destroy the spatial relationship between or among historic buildings designed as a grouping; this includes the regular spacing of buildings within a group, as well as views from one to the other or into the grouping as a whole.

M.3.1.2 New work should:

M.3.1.2.1 Seek to enhance and protect the historic quality and existing resources. For example:

- Conduct a survey examining the level of use existing facilities prior to determining the need for new construction.
- Follow the Standards and Guidelines for Historic Preservation as recommended by the Secretary of the Interior.

M.3.1.2.2 Provide necessary modern conveniences as unobtrusively as possible. For example, it should:

- Site new construction so that it does not destroy existing building relationships or configurations.
- Scale new buildings down so as to minimize their visual impact.
- Place parking to the rear of historic buildings.
- Landscape parking areas and modern mechanical equipment so as to screen them from view.

M.3.1.2.3 Phase out (gradually eliminate) existing intrusions. For example, it should:

- Demolish structures designated, as intrusions on the National Register Inventory when they are no longer needed.
- Restore buildings, which have been altered by inappropriate color schemes, replacement windows, porch enclosures, etc.
- M.3.2 **Treatment of Historic Fabric**. The most effective way to preserve historic properties is to keep them in use and to consistently maintain them. When buildings and grounds are consistently used for their intended purposes and regular maintenance is conducted, there is rarely a need for extensive preservation work. Only when they are misused, underused or left vacant for long periods of time does large-scale rehabilitation become necessary. It follows that if a regular maintenance program is put into effect once a property has been appropriately renovated, another major rehabilitation will rarely be required.

M.3.3 Standards for Historic Preservation Projects.

M.3.3.1 Compatible use of historic sites and structures. Every reasonable effort should be made to use a historic structure or site for its originally intended purpose or to provide a compatible use. The use should be compatible in the sense that it involves minimal alteration to the property and/or has no adverse effect upon its historic integrity. Use of the site and structure should be regulated to prevent



Fig. M.X - Make Every Effort to Use Historical Structures as Originally Intended

alterations that are potentially damaging to historic fabric and/or cultural context (Fig. M.X).

- M.3.3.2 Retention of character defining features. Distinguishing stylistic or character defining features and examples of skilled craftsmanship should not be destroyed, altered, or removed from a historic site or structure. All such fabric should be treated with sensitivity and preserved in its original context and form (Fig. M.X).
- M.3.3.3 **Treatment of deteriorated historic fabric.** Deteriorated historic fabric should be repaired rather than replaced whenever possible. When replacement is unavoidable, new material, whether man-made or natural, should match the existing fabric in composition, design, color, texture, and other visual/structural qualities.
- M.3.3.4 **Documentation of missing historic elements.** Replacement of missing historic elements should be based on the accurate duplication of features known to have existed and substantiated by historic pictorial and/or physical evidence and not on conjecture, nor simply on the example of similar treatment found on other structures or sites of the same period or region.
- M.3.3.5 **Retention of historic alterations.** Changes to a historic structure or site, which have occurred over the course of time, may provide evidence of important social or cultural processes. As such they should be respected and their potential significance carefully evaluated.
- M.3.3.6 **Unacceptable alterations.** Historic sites and structures should be recognized as products of their own time and as part of an important cultural process. Alterations which have no historical basis or which destroy the authenticity of the place are discouraged.
- M.3.3.7 **Acceptable alterations and additions.** When possible, alterations and new additions to historic structures or sites should be done in such a manner as to leave the essential form and integrity unimpaired.
- M.3.3.8 Contemporary design in a historic context. Contemporary design for additions to existing historic sites or districts should not be discouraged if such design is compatible with the massing, proportions, scale, materials,



Fig. M.X - Retain Distinguished Stylistic or Character Defining Features

color, views, and general contextual relationships of the place.

M.3.3.9 **Surface cleaning methods.** Surface cleaning of structures or buildings should be undertaken with the gentlest possible means, and only when cleaning is essential to the preservation of the buildings. Cleaning methods, such as sand blasting, which could damage historic material or speed their deterioration, are discouraged.

M.3.3.10 **Archaeological resources.** All treatment work, which potentially affects surface or sub-surface pre-historic or historic archaeological resources, should be coordinated with an archaeologist.

M.3.3.11 **Historic preservation and maintenance.** The guidelines contained within this IDG are general in nature. The IDG must be utilized in conjunction with the Installation ICRMP.

M.3.4 Guidelines for Historic Preservation Projects.

M.3.4.1 Roof Guidelines.

- Preserve existing historic roofing. Repair and patch with matching materials.
- All roofs should receive an annual inspection. Repair and patch all materials as needed and clean out all gutters and drains.
- When full replacement of the roof becomes necessary, replace or restore with historic materials.
- Roof details. Retain and/or maintain all existing chimneys, ventilators, vents, louvers and decorative elements such as brackets, dentils, and cornices. When possible, restore missing decorative elements.

M.3.4.2 Wall Guidelines.

- Limestone and brick masonry.
 - Clean only when necessary using the gentlest possible means.



Fig. M.X - Replace or Restore Roofs with Historical Materials

 Repair or replace deteriorated or missing units as needed.

Stucco.

- Repair damaged or deteriorated stucco.
- Repaint only when necessary with appropriate color based on analysis of historic paint.

Wood.

- Retain or repair wood siding; where replacement is necessary, match existing clapboards in width and species.
- Repaint only as need to maintain moisture protection.
- Use color scheme based on analysis of existing paint layers.

M.3.4.3 Porch Guidelines.

- Retain or maintain existing original porches.
- Remove historically inappropriate porches.
- Where possible, restore original porches that have been removed or enclosed.

M.3.4.4 Window Guidelines.

- In most historic districts or buildings, windows constitute a highly visible design element as they make up a large percentage of façades.
- If building an addition or altering the building, maintain height configuration of windows.
- Retain window size and fenestration pattern when replacing windows or altering the building.
- If replacing windows, preserve frame material or use historically accurate reproductions. Avoid replacing original frames with aluminum frames.



Fig. M.X - Retain Existing Historical Porches

- Restore historic windows where non-historic replacement windows have been used.
- The window manufacturing industry can replicate and/or reproduce most all types and sizes of windows to match existing historic windows. In many cases, matching replacement windows are available as stock items.

M.3.4.5 Door Guidelines.

- Although not usually as visually overpowering as windows, main entrance doorways are also important façade details. As a design element, decorative doors have stylistic features that belong to the particular era for which they were designed.
- Retain or maintain existing historic doors.
- If replacing doors, preserve frame material or use historically accurate reproductions.
- If building an addition or altering the building, maintain the size of the door opening.
- Restore all main entranceways by reinstalling appropriate frames.

M.3.4.6 Color Guidelines.

- If historic buildings must be repainted before an accurate color scheme is developed, a very conservative approach should be followed. Repaint to match the existing colors or colors that can be documented to have been used on that building.
- Utilize a qualified historic paint color specialist for an inventory and analysis of the paint layer sequences for all building groupings.
- Establish a rotating schedule for the painting and cleaning of each building.

M.3.4.7 Painting Guidelines.

 Do not undertake a paint job until any problems with leaking water have been solved. All gutters and

- downspouts should be repaired and be in good operating condition.
- Only repaint when existing coat is no longer performing, as excessive coats of paint create a thick film, which obscures detail.

M.3.4.8 Handicap and Safety Access Guidelines.

- As a general rule, buildings listed in or determined eligible for listing in the National Register may receive special consideration for meeting safety and accessibility requirements. Any modifications required to bring a historic structure in compliance with safety and accessibility codes should be carefully planned and undertaken so that they do not adversely affect the design of main entrances or principal facades.
- Where possible, avoid alterations to the main façade and principal doorways.
- Place or install new ramps, lifts, and any added fire escapes on secondary building facades such as, to the side or rear of the building.
- Locate new doorways at the rear or side of the building.
- Required protective railings on ramps, stairs, steps, and lifts should match existing porch railings.

M.3.4.9 Mechanical Equipment Guidelines.

- In many cases within historic districts, mechanical equipment is located outside of the building. When historic structures are renovated and mechanical systems are upgraded, equipment placement should be planned in order to make the least visual impact.
- Where possible, locate mechanical equipment within the building.
- Screen necessary surface equipment with vegetation.
- When large groups of buildings are upgraded as one project, consider the use of a remote system.

M.3.4.10 Guidelines for Additions.

- In general, additions should follow all of the guidelines for new construction within historic districts; but, because their proximity makes the potential for damage to historic fabric even greater, there are additional principles that should be followed.
- Avoid changes that impact primary facades.
- Note that some highly visible freestanding buildings may not have a secondary facade, and thus additions are not advisable.
- Scale down additions so that it makes the least visual impact.
- Design should establish a clear and obvious difference between the existing historic structure and the new addition.

M3.4.11 **Force Protection.** These guidelines should be used in conjunction with the <u>UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings</u> and the Force Protection Design Standards of this Installation Design Guide.

M.4 ARMY STANDARDS

- Army Regulation (AR) 200-4, Cultural Resources <u>Management</u>
- Department of the Army Pamphlet (DA PAM) 200-4, <u>Cultural Resources Management</u>
- The Secretary of the Interior's Standards for the Treatment of Historic Properties

M.5 REFERENCES

Advisory Council on Historic Preservation

United States Army Environmental Center

Links

Go to Appendix N

Go to Table of Contents



N.1 The following set of housekeeping rules consist of a list of general and public rules that are applicable to the administrative office work areas throughout the installation. Organizations should make every effort to assure that all personnel are familiar with the facilities housekeeping rules. An organized, well kept working area that is neat and clean contributes to the visual harmony of the work area and fosters work efficiencies.

N.2 Housekeeping Rules (Example). Modify as appropriate.

Housekeeping Rules for (Enter Name of Organization)

General Rules:

- **1. Alterations:** Employees shall not mark, paint, drill, damage, string wires within, or in any way deface any part of the building. Employees will not install or permit the installation of any awnings, shades, Mylar films or num filters on windows. Employees will not obstruct, alter or in any way impair the efficient operation of the heating, ventilating, air conditioning, electrical, fire safety or lighting systems, nor shall the employee tamper with or change the setting of any thermostat or temperature control valve in the building. Employees shall not cover or block air ducts or vents.
- **2. Cleanliness:** Employees shall exercise his/her best efforts to keep workstations and common area, i.e., hallways, corridors, team rooms, etc., clean and free form rubbish. No employee shall cause any unnecessary labor due to carelessness or indifference in the preservation of good order and cleanliness. It is highly recommended that employees use covered cups when transporting liquids to and from the coffee bars. Employees shall not bring any substance into the building that might add an undue burden to the cleaning or maintenance of the premises, or the building.

- **3. Carpet:** Carpet stains and/or damage throughout the third floor should be reported to (Enter Point of Contact (POC).
- **4. Energy Conservation:** Turn off systems furniture lighting, conference room lights, private office lights and equipment, etc. when not in use, especially at the end of the day. During non-business hours, employees shall limit the use of lighting and equipment to areas occupied.
- **5. Lighting:** Do not adjust or move any overhead lighting fixtures of fixtures within workstations. Lighting within workstations may not be without written approval by (Enter POC). One desktop personal lamp may be placed in a workstation.
- **6. Vertical Blinds:** Blinds are to be left down at all times. Only the wands will be used for adjustments. Items will not be placed/stored on windowsills other than small plants as covered above.
- **7. Signage:** No signs, advertisements or notes shall be painted or affixed on or to any window, door, restroom conference/team room or other part of the building unless approved by (Enter POC). Bulletin boards will be installed in each of the coffee bars for posting of unofficial material.
- **8. Vehicles:** Employees shall not bring bicycles into the office environment.
- **9. Air Sprays:** Since many people are sensitive to various air sprays, their use is discouraged.
- **10. Maintenance:** All requests for maintenance on workstations, chairs, carpeting should be reported to (Enter POC).

Public Spaces:

- **1. Eating in Work Areas:** Eating in work areas can contribute to pest infestation and an unsightly appearance. If eating at your desk, please ensure trash is discarded daily. Perishable food items should not be stored in the employees' work area. Perishable foods are to be kept refrigerated.
- **2. Appliances** (e.g., Heaters/Refrigerators/Microwaves/Coffee Pots): Refrigerators and microwaves are not permitted in work areas. One personal fan, not to exceed 8" in diameter may be placed in a workstation. Exceptions to accommodate health problems may be submitted to (Enter POC).
- **3. Centralization:** Copiers, faxes, scanners, printers, etc., will be centralized and networked to the maximum extent possible. Personal office equipment will be provided on an exception basis only.
- **4. Office Accessories:** All office equipment and other devices of any electrical or mechanical nature shall be placed on an area of the work surface that best accommodates the prevention/elimination of any vibration, noise or annoyance to others. Employees shall not construct, maintain, use or operate any equipment of machinery that produces music, sound, noise, pictures, or lighting which is audible or visible beyond their workstation.

- **5. Office Wall Mountings:** Only framed items will be hung on walls. No artwork or other displays may be placed or hung on fixed or temporary walls/partitions, other than in private offices without approval by (Enter POC). The use of tape, pushpins or other devices to affix items to walls is prohibited.
- **6. Plants:** Plants must be contained within workstations and not affixed in any way to the Workstation, partitions, floors or ceiling as outlined in the guidance detailed elsewhere in this document. Small plants that do not interfere with the normal operation of window blinds may be placed on windowsills.
- **7. Speakerphones:** The use of speakerphones is restricted to when absolutely necessary. Concerted efforts must be make to utilize team rooms when speakerphone conversations are required.
- **8. Trash:** The janitorial contractor will discard only items in wastebaskets or items clearly labeled "TRASH." Do not place trash in the corridors, hallways, stairwells or other common areas.
- **9. Workstation Reconfiguration:** Workstations will not be reconfigured, modified or altered in any way by the occupant.
- **10. Workstation Guidelines:** Every employee shall make a concerted effort to keep workstations clean, uncluttered and professional in appearance. Avoid placing papers and other "hard copy" materials on the wall of the workstation and the accumulation of excessive pictures/cartoons/mementos. The storage of papers, boxes and files on floors is prohibited. Materials are not to be hung on the outside panels of workstations.
- **a. Above the Panels:** Nothing will be placed above the panel height of the workstations or hung from the ceiling. Nothing will be stacked on the tops of flipper doors. map files, filing cabinets, towers, etc.
- **b. Cabling:** No temporary cabling for electrical, information technology or communications is allowed. Requests for alterations must be submitted to (Enter POC). This prohibition includes extension cord; surge protectors are allowed. Wiring is to be contained in cable trays and off the floors.

11. Care of Furniture and Furniture Systems

- **a.** Laminate Surfaces To clean laminate tops, wash with a soft cloth and a solution of mild detergent and warm water. Rinse thoroughly and dry with a soft cloth.
- **b. Steel and Painted Metal Surfaces –** Panel trim, panel poles, painted flipper doors and other parts of flipper doors should be cleaned with a soft cloth soaked in detergent and warm water. Rinse thoroughly and dry.
- **c. Fabric** For information on how to remove spots form panels and workstation flipper doors contact (Enter POC).

PLANT SELECTION LIST Plant Material Suitability Matrix		Туре		Growth			Flower		Interes	t		Light		Salt Tolerant			Resis	stant	Soil Moisture			Function								
		Deciduous Evergreen	Slow	Medium	Fast	Fall	Summer Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen	
Botanical Name	Common Name		-			С	haracterist	ics	•			•					Cul	ture						•	Us	se		•		
SHADE TREES		<u>-</u>																												
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PLANT SELECTION LIST Plant Material Suitability Matrix		Type		G	irowth		Flo	ower		I	nterest			Light		Sal	lt Toler	ant	Resist	ant	Soi	l Moistı	ure				Fund	ction			
		Deciduous	Evergreen	Slow	Medium	Fast	Fall	Summer	Spring	Flower	Bark	Foliage	Shade	Sun/shade	Sun	Low	Medium	High	Drought	Pest	Moist	Average	Dry	Street tree	Shade tree	Screen	Massing	Windbreak	Hedge	Bank cover	Specimen
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Appendix P
DA Facilities
Standardization
Program
Centers of
Standardization

P.1 The following U.S. Army Corps of Engineer Centers of Standardization locations are responsible for the standardization of the respective facility types. Addresses and telephone numbers are provided.

DA Facilities Standardization Program Centers of Standardization										
Assigned Center	Facility Type									
U.S. Army Engineering and Support Center, Huntsville Attn: CEHNC-ED-CS-A and IS P.O. Box 1600 Huntsville AL 35807 Telephone: 256-895-1673/1672/1535	Child Development Center-Infant/Toddlers Child Development Center Playground Child Development Center – 6 to 10 Year Olds Physical Fitness Facilities Fire Station Hazardous Material Storage Facility Outdoor Sports Facility Close Combat Tactical Trainer Military Operations Urban Terrain (MOUT) Facility Training Range									
U.S. Army Engineer District, Louisville ATTN: CELRL-ED-D-A 600 Martin Luther King Jr Place Louisville, KY 40202 Telephone: 502-315-6250	Youth Activity Center Army Reserve Center/National Guard Armory Bowling Center(RFP)									
U.S. Army Engineer District, Norfolk ATTN: CENAO-TS-EA 803 Front Street Norfolk, VA 23510 Telephone: 757-441-7702	Classroom21 Criminal Investigation Facility (CIDC) Enlisted Personnel Dining Facility Family Housing (RFP) General Instruction Building Information Systems Facility Troop Issue Subsistence Activity Facility (TISA)									
U.S. Army Engineer District, Omaha ATTN: CENWO-ED-DG/PM-M 215 North 17 th Street Omaha, NE 68102 Telephone: 402-221-4552/4434 U.S. Army Engineer District, Sacramento ATTN: CESPK-ED-M 1325 J Street Sacramento, CA 95814 Telephone: 916-557-7412	Army Chapel Chapel Family Life Center Religious Education Facility Small Site Chapel Brigade/Battalion HQ Two Story Battalion HQ									
U.S. Army Engineer District Savannah ATTN: CESAS-EN-E P.O. Box 889 Savannah, GA 31402 Telephone: 912-652-5212	Company Operations Facility Military Entrance Processing Station (MEPS) Tactical Equipment Maintenance Facility (TEMF) Unaccompanied Enlisted Personnel Housing (UEPH), New & Modernization									

DA Facilities Standardization Program Centers of Standardization											
Assigned Center	Facility Type										
U.S. Army Engineer District, Seattle 4735 E. Marginal Way Seattle, WA 98124 Telephone:	Central Issue Facility General Purpose Warehouse										
U.S. Army Engineer District, Tulsa ATTN: CESWT-EC-D 1645 S. 101 ST East Avenue Tulsa, OK 74128 Telephone: 918-669-7033	One Station Unit Training (OSUT) Barracks Advanced Individual Training (AIT) Barracks Basic Combat Trainee (BCT) Unaccompanied Officer Quarters Unaccompanied Officer Quarters, Transient										

Links

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Go to Table of Contents

Appendix Q Standards and References

- Q.1 Standards and References
- Q.1.1 Section 7, Site Planning:
- Q.1.1.1 Army Standards
 - Technical Manual (TM) 5-803-14, Site Planning and Design
 - Americans with Disabilities Act Accessibility Guidelines (ADAAG)
 - Uniform Federal Accessibility Standards (UFAS)

Q.1.1.2 References

- Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap
 7
- Army Regulation (AR) 200-2, Environmental Effects of Army Actions
- Technical Instructions (TI) 800-01, Design Criteria
- Technical Instructions (TI) 801-02, Family Housing
- <u>Technical Instructions (TI) 804-01, Area Planning, Site Planning, and Design</u>
- Technical Manual (TM) 5-820-1/ Air Force AFM 88-5, Chap. 1,

Surface Drainage Facilities for Airfields and Heliports

- <u>Technical Manual (TM) 5-820-3/Air Force AFM 88-5, Chap. 3,</u> <u>Drainage and Erosion-Control Structures for Airfields and Heliports</u>
- <u>Technical Manual (TM) 5-820-4/Air Force AFM 88-5, Chap. 4,</u>
 Drainage for Areas Other Than Airfields
- <u>Technical Manual (TM) 5-822-2, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas</u>
- <u>Technical Manual (TM) 5-822-5, Pavement Design for Roads,</u>
 <u>Streets, Walks, and Open Storage Areas</u>
- Master Planning Instructions (MPI)
- Whole Building Design

Q.1.2 Section 8, Buildings:

Q.1.2.1 Army Standards

- Army Regulation (AR) 420-70, Buildings and Structures
- <u>Unified Facilities Criteria (UFC) 3-520-01, Interior Electrical</u> <u>Systems</u>
- Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)
- <u>Secretary of the Interior's Standards for the Treatment of Historic</u> Properties
- <u>U.S. Army Corps of Engineers engineering technical letter (ETL)</u> 1110-3-502, Telephone and Network Distribution System Design and Implementation Guide
- Standards of Seismic Safety for Existing Federally Owned and Leased Buildings
- Army Barracks Master Plan, Appendix I, Army Barracks Standards
- Quality Standards for New and Replacement Residential Communities Initiative (RCI) Family Housing

- Army Lodging Standards
- Design Manual for Remoted Target Systems (RETS) Ranges, CEHCN 1110-1-23 Manual
- Unexploded Ordinance Considerations in the Planning, Design, and Construction of Ranges, <u>Supplement to CEHNC 1110-1-23 Manual</u>
- Revised Range Design/Construction Interface Standards

Q.1.2.2 References

- Army Regulation (AR) 190-13, The Army Physical Security Program
- <u>Army Regulation (AR) 200-1, Environmental Protection and Enhancement</u>
- Army Regulation (AR) 200-2, Environmental Effects of Army Actions
- Army Regulation (AR) 200-4, Cultural Resources Management
- Army Regulation (AR) 405-45, Real Property Inventory Management
- Army Regulation (AR) 405-45, Real Property Inventory Management
- Army Regulation (AR) 405-70, Utilization of Real Property
- Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap
 8
- <u>Unified Facilities Criteria (UFC) 1-200-01, Design: General Building Requirements, 31 July 2002</u>
- Engineering Regulation (ER) 1110-345-122, Engineering and Design, Interior Design
- Department of the Army Pamphlet (DA PAM) 200-4, Cultural Resources Management
- <u>U.S. Army Corps of Engineers, Design Guide (DG) 1110-3-122,</u>
 <u>Design Guide for Interiors</u>
- Department of Defense (DoD) Interior Design Website

- Military Handbook 1191, Medical Military Construction Program
 Facilities Design and Construction Criteria
- Technical Instructions (TI) 800-01, Design Criteria
- Technical Instructions (TI) 809-04, Seismic Design for Buildings
- <u>Technical Instructions (TI) 809-05, Seismic Design Evaluation and Rehabilitation for Buildings</u>
- <u>Technical Instructions (TI) 811-16, Lighting Design</u>
- Technical Manual (TM) 5-683, Electrical Interior Facilities
- <u>Technical Manual (TM) 5-688, Foreign Voltage and Frequencies</u> Guide
- <u>Technical Manual (TM) 5-809-10/Navy NAVFAC P-355/Air Force</u>
 <u>AFM 88-3, Chap 13, Seismic Design for Buildings</u>
- <u>Technical Manual (TM) 5-809-10-2/Navy NAVFAC P-355.2/Air</u>
 <u>Force AFM 88-3, Chap 13, Sec B, Seismic Design Guidelines for Upgrading Existing Buildings</u>
- Army Barracks Master Plan
- Air Force Sustainable Facilities Guide
- Air Force Interior Design Guides
- Assistant Chief of Staff for Installation Management, Sustainable Design and Development Website
- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), <u>Sustainable Design and Development Website</u>
- U.S. Army Corps of Engineers Engineering Technical Letter (ETL) 1110-3-502, Telephone and Network Distribution System Design and Implementation Guide
- Whole Building Design Guide
- Unified Facilities Guide Specifications (UFGS), "Division 12 -Furnishings", <u>Construction Criteria Base</u>

Q.1.3 Section 9, Circulation:

Q.1.3.1 Army Standards

- Army Regulation (AR) 420-72, Transportation Infrastructure and Dams
- <u>Technical Instructions (TI) 804-11, Design for Non-Organizational or Privately Owned Vehicle (POV) Site Circulation and Parking</u>
- <u>Technical Manual (TM) 5-811-1/Air Force AFJMAN 32-1080</u>,
 <u>Electric Power Supply and Distribution</u>
- <u>Technical Manual (TM) 5-822-2, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas</u>
- <u>Technical Manual (TM) 5-850-2/Air Force AFJMAN 32-1046,</u> <u>Railroad Design and Rehabilitation</u>
- Manual For Railway Engineering
- <u>Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum</u>
 Antiterrorism Standards for Buildings
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)
- Manual of Uniform Traffic Control Devices (MUTCD)

Q.1.3.2 References

- Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap
 9
- U.S. Air Force, Landscape Design Guide, Parking Area
- <u>U.S. Air Force, Landscape Design Guide, Walkways and Bikeways</u> (Provides a comprehensive walkways and bikeways planning guide including sections on paving materials and gradients and curvature data.)
- <u>Chicago's Bike Lane Design Manual</u> (Provides a comprehensive series of technical drawings and design specifications for bike lanes.)

Q.1.4 Section 10, Landscape:

Q.1.4.1 Army Standards

- Army Regulation (AR) 420-70, Buildings and Structures
- <u>Technical Manual (TM) 5-630, Natural Resources Land Management</u>
- Technical Manual (TM) 5-803-13, Landscape Design and Planting
- American Standard for Nursery Stock, ANSI Z60.1
- Overseas (Host Nation Standards)

Q.1.4.2 References

- <u>Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap</u>
 10
- USAF Landscape Design Guide
- C. Brickell and D. Joyce. Pruning and Training, 1996.

Q.1.5 Section 11, Site Elements:

Q.1.5.1 Army Standards

- DoD 4525.8-M, DoD Official Mail Manual
- Army Regulation (AR) 420-49, Utility Services
- Army Regulation (AR) 420-70, Buildings and Structures
- Army Regulation (AR) 420-72, Transportation Infrastructure and Dams
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- Uniform Federal Accessibility Standards (UFAS)
- Technical Manual (TM) 5-807-10, Signage
- Manual of Uniform Traffic Control Devices (MUTCD)
- MTMC Pamphlet 55-14, *Traffic Engineering for Better Signs and Markings*

<u>Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum</u>
 Antiterrorism Standards for Buildings

Q.1.5.2 References

- <u>Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap</u>
 11
- Army Regulation (AR) 1-33, Memorial Programs
- Army Regulation (AR) 840-1, Department of the Army Seal, and Department of the Army Emblem and Branch of Service Plaques
- <u>Technical Manual (TM) 5-663, Child Development Center, Play</u>

 Area Inspection and Maintenance Program
- <u>Technical Manual (TM) 5-803-5, Installation Design Manual</u>
- <u>Technical Manual (TM) 5-803-11/Air Force AFJMAN 32-10139,</u>
 <u>Children's Outdoor Play Areas</u>

Q.1.6 Section 12, Force Protection:

Q.1.6.1 Army Standards

- <u>Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum</u>
 Antiterrorism Standards for Buildings
- Unified Facilities Criteria (UFC) 4-010-10, DoD Minimum
 Antiterrorism Standoff Distances for Buildings (This document is a "For Official Use Only (FOUO)" publication. Users may contact the Point of Contact posted at the noted website for inquires regarding this document.)
- Uniform Federal Accessibility Standards (UFAS)
- Americans with Disabilities Act Accessibility Guideline (ADAAG)
- DoD Instruction 2000.16, DoD Antiterrorism Standards

Q.1.6.2 References

• Unified Facilities Criteria (UFC) 2-600-01, Installation Design, Chap

- DoD Handbook 2000.12-H, Protection of DoD Personnel and Activities Against Acts of Terrorism and Political Turbulence, February 1993 (This Handbook is a "For Official Use Only (FOUO)" publication. Users may contact the Point of Contact posted at the following website to obtain a copy of the Handbook.) http://www.dtic.mil/whs/directives/corres/html/o200012h.htm
- Army Regulation (AR) 525-13, The Army Force Protection Program (Available only through the <u>Army Knowledge Online</u> web portal.)
- UFC 4-010-02, DoD Security Engineering Manual, (This document is in draft form. See the <u>Security Engineering Working Group</u> website.
- U.S. Air Force, <u>Installation Force Protection Guide</u>: (Contains information on installation planning, engineering design, and construction techniques that will preclude or minimize the effect of a terrorist attack.)
- Technical Manuals/Air Force Manual series TM 5-853/AFMAN) 32-1071, Security Engineering, 3 volume series: (Volumes 2 and 3 are "For Official Use Only (FOUO)" and are not available on the Army Corps of Engineers publications website. A copy of the manuals can be acquired via your standard publications account. The three volumes cover, Project Development, Concept Design, and Final Design respectively.)

Q.1.7 Appendix D, Sustainable Design:

Q.1.7.1 Army Standard

The SPiRiT rating of "Silver" is the standard for all FY06 MILCON vertical construction projects currently under design (as of March 18 2003). For all other FY06 and future-year MILCON projects the minimum SPiRiT rating requirement is "Gold". See <u>Assistant Secretary of the Army memorandum Subject: Sustainable Design and Development Requirements, dated 18 March 2003</u>.

Q.1.7.2 References

- Assistant Chief of Staff for Installation Management memorandum Subject: Sustainable Project Rating Tool, dated 21 December 2002
- Assistant Chief of Staff for Installation Management, Sustainable

Design and Development Website

- U.S Army Corps of Engineers, Engineering Research and Development Center, Construction Engineering Research Laboratory (CERL), <u>Sustainable Design and Development Website</u>
- Air Force Sustainable Facilities Guide
- Whole Building Design Guide

Q.1.8 Appendix M, Historic Preservation:

Q.1.8.1 Army Standards

- Army Regulation (AR) 200-4, Cultural Resources Management
- <u>Department of the Army Pamphlet (DA PAM) 200-4, Cultural Resources Management</u>
- <u>The Secretary of the Interior's Standards for the Treatment of Historic Properties</u>

Q.1.8.2 References

- Advisory Council on Historic Preservation
- United States Army Environmental Center

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COMMENT FORM

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